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NORMAL STANDARDS IN TREAMENT OF ONE HUNDRED CASES OF DIABETES WITH INSULIN *

JOSEPH H. BARACH, M.D.

PITTSBURGH

Those who realize that most of the satisfaction of the practitioner of medicine must come from within will agree that the past year must have been the most satisfying one in the lives of many medical men. To have had patients come in a state of exhaustion that made walking the greatest effort, or brought on a stretcher, hungry but unable to eat, with thirst that could not be quenched, so low in flesh and strength that the memory of their former selves caused them mental anguish, pained by neuritis, pruritus or furunculosis—to have seen all this and to have had a part in the transformation, whereby, with the use of insulin and a proper diet over a short period of time, these patients have enjoyed food and drink, have increased in weight and strength and, having regained the appearance of normal health, have returned to their families and former occupations, is indeed a satisfaction in the life of a physician. Fortunate is the man to whom this opportunity came, even though it is to come but once in his career. Such are my first thoughts after a year's treatment of diabetes with insulin; and I am grateful for having had that experience.

Those who have shared in this experience, whether physician or patient, should bend their knees toward the Mekka of the North. In America, toward Allen and Joslin and those others who have carried the knowledge of science across that difficult bridge which leads to the patient himself, and who have taught the victim of diabetes the meaning of calories, protein, carbohydrate and fat, and how to weigh foods and how to use them. More so do we offer our salutations to the farther North: To Banting, Best, Collip, MacLeod, Campbell, Fletcher and those others who have given us a therapeutic agent of wonderful potency. If the diabetic patient of this country has had one year added to his span of life, about a million years of human life has been added to America yearly. Time alone will tell how many more years the diabetic patient of the present and of the future will have added to his life, the total value of which is immeasurable.

It is interesting to note that the foundation of the dietetic treatment in diabetes was laid by an English physician, Rollo, about 120 years ago, and that Bouchardat, seventy-eight years ago, expressed the opinion that diabetes came about through a disease of the pancreas. Opie first expressed the view, twenty-three years ago, that in diabetes it is the islands of Langerhans chiefly that are diseased. Ssobelow and Schulze, working independently, twenty-one years ago, found that after ligation of the excretory ducts of the pancreas, the acinous tissue gradually undergoes atrophy, while the islands of Langerhans remain intact. This experiment is the same as that of Baron, on which, Banting says, his own hypothesis and experiments were based. Zuelzer, Dohrn and Marxer, sixteen years ago, made an extract of pancreas and noted favorable effects of this extract on dogs without a pancreas and on the ketonuria of human diabetes; they treated six cases of human diabetes and four cases of ketosis with favorable results; the disadvantage of their extract was in its impurity. After injecting this extract into human beings, shivering, chills and fever were produced. Banting, Campbell and Fletcher cite the work of Zuelzer and indicate the importance of it. The extract was made by expressing the juice of the pancreas, treating it with alcohol, and dissolving the residue in salt solution or water; it was given by injection. Falta, thirteen years ago, concluded that there is probably produced from the insular tissue of the pancreas a hormone that is given principally to the venous blood and carried to the liver. When this hormone is absent, marked excretion of sugar and disturbance of glycogenesis occurs. In discussing Zuelzer's experimental work, Falta made light of its probable value and the possibilities of such an extract. It was left for Banting and his co-workers to bring to a successful issue the work which they began in November, 1920. By March, 1922, the importance and possibilities of insulin seemed very clear.

UNDERLYING PRINCIPLES OF THE DIET

In determining the diet of the diabetic patient, we must meet three primary needs. First, caloric requirement must be met. The human engine cannot continue running without fuel. Second, we must maintain protein requirements of the body. If we fail in this we undermine the very structure of the organism, and our patient will undergo degenerative changes, which may come on quite unnoticed but very certain in their destructivity. If both total calories and protein are insufficient, the patient's resistance to infection is lowered, and he may fall a victim to other diseases. Third, if the carbohydrate, protein and fat are given in wrong proportions, certain diseased states of the metabolism—ketosis—will follow with deadly effects.

Protein.—Present-day authorities on metabolism are generally agreed that 1 gm. of protein per kilogram of body weight is a safe protein ration. Von Noorden, however, this year stated his belief that it is wise to allow the diabetic patient who is on a restricted protein diet one or two days of liberal protein feeding each

* From the Presbyterian Hospital.
* Read before the college of Physicians, Pittsburgh, Dec. 20, 1923.

week; that this will increase the vigor of the patient. Allen allows a generous protein ration, giving about 100 gm. to a patient taking 2,000 calories in twenty-four hours. Very largely on theoretical grounds, a ration of 0.66 gm. per kilogram is used; it remains to be proved to the clinician that a minimum protein ration will retard the downward course of the disease, and meet the requirements of full health. In our work we have used from 1 to 1.25 gm. per kilogram of body weight, the larger ration to the young and very active patients.

Carbohydrate.—We give the largest amount of carbohydrate that the patient can tolerate without glycosuria and hyperglycemia. If the carbohydrate in the diet is too small to permit complete oxidation of the fat necessary for a maintenance diet, we give additional carbohydrate, and metabolize this added quantity with insulin.

Fat.—We give fat sufficient to meet the caloric requirement of the patient avoiding large amounts which predispose to ketosis. The ketoantiketogenic ratio is not yet finally known. On the basis of experiments by Zeller, Lusk, Shaffer and Osborne and on his own experience, Woodyatt [1] states that 1 gm. of glucose will metabolize 1.5 gm. of the higher fatty acids. Banting, Campbell [2] and Fletcher use diets on the basis of 1 gm. of glucose to 1.3 gm. of fatty acids. Wilder gives 1 gm. of glucose for 1.7 gm. of fatty acids.

The total glucose in these diets is estimated by adding the carbohydrate plus 58 per cent. of the protein plus 10 per cent. of the fat. Ladd and Palmer have adopted the simple ratio of 4 gm. of fat for each gram of carbohydrate in the diet. That 58 per cent. of the protein is directly available as carbohydrate has not yet been proved to the satisfaction of all workers in metabolism.

THE TOTAL DIET

On this ketoantiketogenic ratio a number of theoretical diets have been constructed. First of all, the total caloric requirement is calculated. Such calculations are based on the work of Rubner, Benedict, Du Bois [3] and others. They are intended to meet the basal heat production plus 10 per cent. for the food itself plus the calories used in the physical exertion.

Caloric output varies with actual surface area of the body. Surface area is calculated from weight and height. The total calories are calculated from surface area, age and sex. Benedict has questioned the accuracy of these calculations when applied to individuals in different states of nutrition.

While it may be true that diabetic patients as a class have the same metabolic error, and should lend themselves to being considered as a group, subject to the same laws of metabolism, it is equally true that in diabetes we encounter extreme variations in the nutritional state, which introduce the element of error pointed out by Benedict. Even if those calculations were acceptable for the diabetic patient at rest, they are still open to the criticism offered by Allen,[4] who, speaking of his own method, says: "We follow no arbitrary rule for establishing the total diet of a patient. It may appear scientific to determine the basal metabolism and then guess at the requirement for active life, but it is as well to guess at the whole diet in the first place. Some approximation can be based on the patient's height and weight, but persons who are of similar size sometimes require very different rations."

That persons of the same size may require different diets is affirmed by the recent work of Boothby and Sandiford [5] at the Mayo Clinic, in which it is shown that a goiter patient's increased metabolism is proportionate to his muscular activity, incoordination and lost motion; that such a patient requires about twice as many calories as the normal person to do a given piece of work, such as turning over in bed and raising the arms.

Every-day experience with diabetic patients has shown me that the nervous make-up of diabetic patients of the same age, height and weight is an important factor in determining the food requirement for active life. The various formulas now in use do not and cannot include this variable factor, and therefore are not as applicable as they may seem.

I believe, with Allen, that the arbitrary rule of estimating the metabolic needs of the diabetic patient by theoretical calculations is inaccurate, but I do not lend myself, as Allen does, to guess at the diet. It is well to have a standard, if possible. The guess of Allen with the enormous knowledge and experience that form the background of his ideas, and the guess of the average practitioner of medicine who is now treating diabetic patients, will, it is needless to say, lead to very different end-results. For a period of three months, beginning in November, 1922, we made calculations and comparisons between the diets of Woodyatt, Wilder and others, comparing them with our own. We found that we could stabilize the diet, get our patient sugar free, avoid undesirable loss or cause an increase in weight, always in the same length of time and in less time generally than by other methods.

In the absence of a better method and one which is beyond criticism, we follow the normal diet as near as the patient's diabetic state will permit. We follow this course because we do not yet know where a diet too low in protein and too high in fat will lead our patient after a period of years. The well known municipal statistics

TABLE 1.—*Normal Diet at 30 Calories per Kilogram of Body Weight* *

Pounds	Kilograms	Calories	Carbohydrate	Protein	Fat
88.0	40	1,200	201	48.0	22.6
92.4	42	1,260	211	50.4	23.8
96.8	44	1,320	221	52.8	24.9
101.2	46	1,380	231	55.2	26.0
105.6	48	1,440	241	57.6	27.2
110.0	50	1,500	251	60.0	28.4
114.4	52	1,560	261	62.4	29.4
118.8	54	1,620	271	64.8	30.6
123.2	56	1,680	281	67.2	31.8
127.6	58	1,740	291	69.6	32.8
132.0	60	1,800	301	72.0	34.0
136.4	62	1,860	311	74.4	35.1
140.8	64	1,920	321	76.8	36.2
145.2	66	1,980	331	79.2	37.4
149.6	68	2,040	341	81.6	38.5
154.0	70	2,100	351	84.0	39.6
158.4	72	2,160	361	86.4	40.8
162.8	74	2,220	371	88.8	41.9
164.2	76	2,280	381	91.2	43.0
171.6	78	2,340	391	93.6	44.2
176.0	80	2,400	401	96.0	45.3
180.4	82	2,460	411	98.4	46.4
184.8	84	2,520	421	100.8	47.6
189.2	86	2,580	431	103.2	48.7
193.6	88	2,640	441	105.6	49.8
198.0	90	2,700	451	108.0	51.0
202.4	92	2,760	461	110.4	52.1
206.8	94	2,820	471	112.8	53.2
211.2	96	2,880	481	115.2	54.3
215.6	98	2,940	491	117.6	55.4
220.0	100	3,000	501	120.0	56.6

* Carbohydrate, 67 per cent.; protein, 16 per cent.; fat, 17 per cent.

1. Woodyatt, R. T.: Objects and Methods of Diet Adjustment in Diabetes, Arch. Int. Med. **28**: 125 (Aug.) 1921.
2. Campbell, W. R.: Dietetic Treatment of Diabetes Mellitus, Canadian M. A. J. **13**: 487 (July) 1923.
3. Du Bois: Clinical Calorimetry, Arch. Int. Med., June, 1916.
4. Allen, F. M.: Treatment of Diabetes with Insulin, J. A. M. A., **81**: 1330 (Oct. 20) 1923.
5. Boothby, W. M., and Sandiford, Irene: The Total and Nitrogenous Metabolism in Goiter, J. A. M. A. **81**: 795 (Sept. 8) 1923.

of Königsberg, Munich, Paris and London show that the average consumption of carbohydrate, protein and fats in certain proportions is fairly constant. Other studies have shown similar results. These diets, it may be said, indicate the normal cravings of man in the temperature zone. In interpreting statistical studies of the food habits of man, not all authorities are agreed, however, that the chosen diets of man really indicate his physiologic needs. They say that man's choice of food since the days of savagery has been influenced by geographic distribution, custom, state of civilization, plentitude, etc., and they question whether his diet is as much a product of evolution as he himself is, and if it is in any real sense physiologic. Chittenden and others have shown that man can apparently get along with less protein than he instinctively takes, to which MacLeod [6] says, "The question is not Can he, but Should he, do so? Is Chittenden right and are the instincts of man wrong?"

The question of optimum versus minimum protein diet is well presented by Ringer.[7] The healthy man of the present day is the product of the so-called normal diet, and not of a physiologic or ideal diet. In accordance with these studies I have constructed Table 1 as a table of normal diets. These diets, based on the municipal statistics, are on the basis of carbohydrate, 67 per cent.; protein, 16 per cent., and fats, 17 per cent. of the total. We allow for the needs of the hospitalized ambulatory patient 30 calories per kilogram of body weight. The diabetic patient cannot assimilate the normal amount of carbohydrate. Our experience in 100 hospital cases this year has shown that only one patient could take more than half the normal amount of carbohydrate. The diabetic patient does not do well on excessive protein. A normal diet offers about 1.25 gm. of protein per kilogram. Allowing a nearly normal amount of protein, 1 gm. per kilogram and as much carbohydrate as the patient can take, the remaining caloric requirement is furnished in fat. This is the basis of Table 2, which serves as our starting point in determining the total diet of the patient. This affords our patient a diet on the first day equal to Joslin's diet on the twelfth day, and at the same time conserving his weight and strength. The liberal amount of fat in these diets does not cause an increase in ketosis. We see the acetone and diacetic acid of the urine diminish daily with this ratio of carbohydrate, protein and fat. The patient is placed on the diet suitable for his weight at the time of entrance to the hospital. In all subsequent changes, the protein is maintained at from 1 to 1.25 gm. per kilogram of body weight.

Being guided by the glucose output in the twenty-four hour specimen of urine, averaging this output every two or three days, we reduce the carbohydrate intake from time to time as needed. At each reduction of carbohydrate, we add fat of equal caloric value. Thus the process of attrition goes on; what we lose in carbohydrate we make up in fat, not permitting a loss of weight or strength of the patient. Ordinarily we can render the patient sugar free in from six to ten days. If by this process of exchange we cannot render the patient sugar free or attain nearly a normal blood sugar on a satisfactory maintenance diet without the presence of acetone or diacetic acid in the urine, we introduce insulin in the treatment. We give enough insulin to allow the patient a carbohydrate and fat intake for a good maintenance. At the time of leaving the hospital, the patient is usually taking 35 calories per kilogram, having gradually worked up to this point. A few have been taking even more than that.

TABLE 2.—*Diabetic Diet Containing Half Normal Carbohydrate Plus 1 Gram Protein per Kilo, Plus Fat p.s. for 30 Calories per Kilo Body Weight* *

Body Weight					
Pounds	Kilograms	Calories	Carbohydrate, Gm.	Protein, Gm.	Fat, Gm.
70.4	32	960	80.0	32	58.0
72.6	33	990	82.5	33	59.5
74.8	34	1,020	85.0	34	61.0
77.0	35	1,050	87.5	35	62.5
79.2	36	1,080	90.0	36	64.0
81.4	37	1,110	92.5	37	66.0
83.6	38	1,140	95.0	38	68.0
85.8	39	1,170	97.5	39	69.5
88.0	40	1,200	100.0	40	71.0
90.2	41	1,230	102.5	41	72.5
92.4	42	1,260	105.0	42	74.0
94.6	43	1,290	107.5	43	76.0
96.8	44	1,320	110.0	44	78.0
99.0	45	1,350	112.5	45	79.5
101.2	46	1,380	115.0	46	81.0
103.4	47	1,410	117.5	47	83.0
105.6	48	1,440	120.0	48	85.0
107.8	49	1,470	122.5	49	86.5
110.0	50	1,500	125.0	50	88.0
112.2	51	1,530	127.5	51	90.0
114.4	52	1,560	130.0	52	92.0
116.6	53	1,590	132.5	53	93.5
118.8	54	1,620	135.0	54	95.0
121.0	55	1,650	137.5	55	97.0
123.2	56	1,680	140.0	56	99.0
125.4	57	1,710	142.5	57	100.5
127.6	58	1,740	145.0	58	102.0
129.8	59	1,770	147.5	59	104.0
132.0	60	1,800	150.0	60	106.0
134.2	61	1,830	152.5	61	107.5
136.4	62	1,860	155.0	62	109.0
138.6	63	1,890	157.5	63	111.0
140.8	64	1,920	160.0	64	113.0
143.0	65	1,950	162.5	65	115.0
145.2	66	1,980	165.0	66	117.0
147.4	67	2,010	167.5	67	119.0
149.6	68	2,040	170.0	68	121.0
151.8	69	2,070	172.5	69	122.5
154.0	70	2,100	175.0	70	124.0
156.2	71	2,130	177.5	71	126.0
158.4	72	2,160	180.0	72	128.0
160.6	73	2,190	182.5	73	129.5
162.8	74	2,220	185.0	74	131.0
165.0	75	2,250	187.5	75	133.0
167.2	76	2,280	190.0	76	135.0
169.4	77	2,310	192.5	77	136.5
171.6	78	2,340	195.0	78	138.0
173.8	79	2,370	197.5	79	140.0
176.0	80	2,400	200.0	80	142.0
178.2	81	2,430	202.5	81	143.5
180.4	82	2,460	205.0	82	145.0
182.6	83	2,490	207.5	83	147.0
184.8	84	2,520	210.0	84	149.0
187.0	85	2,550	212.5	85	150.5
189.2	86	2,580	215.0	86	152.0
191.4	87	2,610	217.5	87	154.0
193.6	88	2,640	220.0	88	156.0
195.8	89	2,670	222.5	89	157.5
198.0	90	2,700	225.0	90	159.0
200.2	91	2,730	227.5	91	161.0
202.4	92	2,760	230.0	92	163.0
204.6	93	2,790	232.5	93	164.5
206.8	94	2,820	235.0	94	166.0
209.0	95	2,850	237.5	95	168.0
211.2	96	2,880	240.0	96	170.0
213.4	97	2,910	242.5	97	171.5
215.6	98	2,940	245.0	98	173.0
217.8	99	2,970	247.5	99	175.0
220.0	100	3,000	250.0	100	177.0

* Instructions for determining total diet in diabetes mellitus:
Determine naked weight of patient.
Give diet suitable for that weight, as indicated in diabetic chart. Disregard fractions.
Continue same diet two or three days: two days if glucose output is high and acidosis is present.
Collect twenty-four hour specimens of urine daily.
Determine average grams glucose output per day.
Subtract glucose output from grams of carbohydrate in diet.
Multiply grams of glucose excreted by 4 and divide by nine; add result to grams of fat in the diet. Calories lost as glucose are thus replaced by fat, to maintain body needs.
Repeat the exchange until urine becomes sugar free. When final trace of sugar is slow to disappear, allow more time before reducing carbohydrates or reduce fat.
Ordinarily, avoid giving more than 3 gm. of fat for each gram of carbohydrate. When this seems necessary for maintenance of body weight and strength, insulin is usually indicated.
Protein, 1 gm. per kilogram of body weight, is sufficient for adults. Growing children are given 1.25 gm. per kilogram.

Thus it is that we make the best trade possible for our patient; allowing him to take care of as much carbohydrate as his pancreas will permit, giving him

6. MacLeod: Physiology and Biochemistry in Modern Medicine, St. Louis, C. V. Mosby Company, p. 591.
7. Ringer: Endocrinology and Metabolism, New York, D. Appleton & Co., 3: 119, 1922.

insulin when necessary and in amounts necessary, to furnish sufficient carbohydrate protein and fat to meet the requirements.

NUTRITIONAL STATE

Diabetic patients as they come to us are generally undernourished or overnourished. Since insulin and high fat diets have made it possible to give our patients luxus diets and to increase their weight even to a certain grade of obesity, an important question has arisen. At what nutritional state of the patient shall we aim? Our present-day experience does not warrant a final answer in this respect. It was Allen himself, who, in May, 1923, said that marked undernutrition for diabetic patients becomes a thing of the past with the advent of insulin. Most workers in the field are agreed that the patient's weight should be at least a few pounds below normal. A very good standard for this will be found in the medico-actuarial tables of 1912 (Table 3). These tables are based on the weight of 358,323 males and females. Fisher and Fisk [8] have shown that, after the age of 35, overweight is associated with an increasingly high death rate, and that persons a few pounds under the average weight for 35 show the lowest death rate.

If, therefore, we accept the weight of age 30 for persons of 35 and over, which includes the majority of diabetic patients, we come very close to the desired weight. The importance of these standards as a guide was made clear by Joslin. Petty [9] also has adopted these figures as a standard for the diabetic patient. There are many patients who will never attain the ideal weight; but for those above and those not far below, these figures should serve as an admirable guide.

RESULTS ATTAINED IN THE 1923 SERIES

The cases in this series numbered 220. Of these, 100 were given a complete course of hospital treatment. Excepting those cases in which there was gangrene, the usual stay at the hospital is three weeks. During this time the patients learn to weigh and calculate their diet, and test the urine for sugar, acetone and diacetic acid. They are taught the administration and use of insulin. The patient keeps a daily record, just as we do, of the diet, glycosuria, ketones and body weight. In this way the patient comes to understand the aims and methods of our treatment. Up to the present we have not had one failure that might be attributed to insulin itself. I have seen three deaths from coma, but they occurred in patients who had been in coma for more than forty-eight hours before treatment was instituted. There were three deaths from pulmonary tuberculosis. The diabetic condition in these cases was never beyond good control. There were two deaths from cardiorenal disease, and one death from pneumonia in a patient who had been home a month and whose diabetes was under complete control. Of all hospital patients, only one is living the life of semi-invalidism. She is nearly a total diabetic patient and is of a rather poor nervous make-up. So far as we know today, the others of this series have returned to their former occupations. We have had laborers, machinists, carpenters, tinsmiths, railroad brakemen, superintendents of industrial plants, traveling salesmen and all types of professional and executive men return to their former occupations on full time. Housewives, working women, young girls and boys are leading their normal lives.

TABLE 3.—*Average Heights and Weights* *

	221,819 Men																
Age	5 Ft. 0 In.	5 Ft. 1 In.	5 Ft. 2 In.	5 Ft. 3 In.	5 Ft. 4 In.	5 Ft. 5 In.	5 Ft. 6 In.	5 Ft. 7 In.	5 Ft. 8 In.	5 Ft. 9 In.	5 Ft. 10 In	5 Ft. 11 In.	6 Ft. 0 In.	6 Ft. 1 In:	6 Ft. 2 In.	6 Ft. 3 In.	6 Ft. 4 In:	6 Ft. 5 In.
15	107	109	112	115	118	122	126	130	134	138	142	147	152	157	162	167	172	177
20	117	119	122	125	128	132	136	140	144	148	152	156	161	166	171	176	181	186
25	122	124	126	129	133	137	141	145	149	153	157	162	167	173	179	184	189	194
30	126	128	130	133	136	140	144	148	152	156	161	166	172	178	184	190	196	201
35	128	130	132	135	138	142	146	150	155	160	165	170	176	182	189	195	201	207
40	131	133	135	138	141	145	149	153	158	163	168	174	180	186	193	200	206	212
45	133	135	137	140	143	147	151	155	160	165	170	176	182	188	195	202	209	215
50	134	136	138	141	144	148	152	156	161	166	171	177	183	190	197	204	211	217
55	135	137	139	142	145	149	153	158	163	168	173	178	184	191	198	205	212	219

	136,504 Women																
Age	4 Ft. 8 In	4 Ft. 9 In.	4 Ft. 10 In.	4 Ft. 11 In.	5 Ft. 0 In.	5 Ft. 1 In.	5 Ft. 2 In.	5 Ft. 3 In.	5 Ft. 4 In.	5 Ft. 5 In.	5 Ft. 6 In.	5 Ft. 7 In.	5 Ft. 8 In.	5 Ft 9 In.	5 Ft. 10 In.	5 Ft. 11 In.	6 Ft 0 In
15	101	103	105	106	107	109	112	115	118	122	126	130	134	138	142	147	152
20	106	108	110	112	114	116	119	122	125	128	132	136	140	143	147	151	156
25	109	111	113	115	117	119	121	124	128	131	135	139	143	147	151	154	158
30	112	114	116	118	120	122	124	127	131	134	138	142	146	150	154	157	161
35	115	117	119	121	123	125	127	130	134	138	142	146	150	154	157	160	163
40	119	121	123	125	127	129	132	135	138	142	146	150	154	158	161	164	167
45	122	124	126	128	130	132	135	138	141	145	149	153	157	161	164	168	171
50	125	127	129	131	133	135	138	141	144	148	152	156	161	165	169	173	176
55	125	127	129	131	133	135	138	141	144	148	153	158	163	167	171	174	177

* Height and weight taken with shoes on and coat and vest or waist off. After age 30 it is safer to keep to that weight than to exceed it.

RESULTS OF INSULIN TREATMENT

Food Intake.—A detailed survey of the first thirty-five patients showed that at the end of the year thirteen were taking more food, and in twenty it was thought best to continue the same diet. In one case it was found necessary to lower the total food intake.

Insulin.—In these thirty-five patients twenty-seven are taking the same dosage. Seven are taking less insulin than they did when leaving the hospital, and in five it was necessary to increase the amount of insulin to maintain the total food tolerance and the desired nutritional state. In the five taking more insulin, intercurrent acute infections seemed to precede, if they were not the main cause, of the lowered tolerance.

NUTRITIONAL STATE

In these thirty-five cases there was a weight increase in twenty-five, ranging from 3 to 30 pounds (1.4 to 13.6 kg.). In eight there was no increase, and in two there was a loss of weight. Six patients gained from 2 to 6 pounds (1 to 2.7 kg.). Nine patients gained from

8. Fisher, Irvine, and Fisk, Lyman: How to Live, p. 260.
9. Petty: Internat. Clin. **11**, Series 33, p. 37, 1923.

5 to 10 pounds (2.3 to 4.5 kg.). Five patients gained from 10 to 20 pounds (4.5 to 9 kg.). Five patients gained from 20 to 30 pounds (9 to 13.6 kg.).

DOWNWARD COURSE OF THE DISEASE

In attempting to estimate the future prospects for these patients, I am careful not to be too optimistic. Of these thirty-five patients, the outlook is good in twenty-six. These are practically without conditions. In nine cases the outlook is fair. It must be remembered that the previous disease history, existing complications, occupation and environment of the patient are all influential factors. Of those in whom the outlook today is only fair, it is very evident that better conditions in the home and economic betterment would tend to place them in the more favorable class.

401 Jenkins Building.

JEJUNAL ALIMENTATION IN TREATMENT OF PEPTIC ULCER *

H. L. BOCKUS, M.D.

Associate in Gastro-Enterology, Graduate School of Medicine, University of Pennsylvania

PHILADELPHIA

To the surgeon belong the chronic large peptic ulcer of long standing, the perforating ulcer and ulcer of the anterior wall of the stomach; ulcer complicated by pyloric stenosis, hour glass contraction, deforming adhesions or localized peritonitis; ulcer associated with recurrent attacks of uncontrollable hemorrhage or disease of the gallbladder or appendix. The average uncomplicated peptic ulcer is amenable to medical treatment. A satisfactory cure is obtained in a large percentage of cases by any of the recognized methods of medical management. A large number of failures is due to an abbreviated course of treatment, improper selection of cases, or a lack of cooperation on the part of the patient in the later stages of treatment. The average patient requires one month of hospital management and one month of convalescent care before he can return to work with any sense of security. Economically, this long period of inactivity constitutes a definite contraindication to medical treatment in a great many cases. Consequently, a certain percentage of medical ulcers have been treated surgically for economic reasons, it being assumed that the patient will be able to return to his work in a shorter period of time. With the idea of shortening the time of medical treatment, after having observed Dr. Einhorn's results with duodenal alimentation, it was decided to try a similar plan of treatment in a series of cases.

The treatment used in this series differs from that of Einhorn [1] in the following particulars:

1. The feedings were introduced into the jejunum and not into the duodenum.

2. Alkalis were administered by mouth between each feeding, every two hours, instead of three times daily.

3. After the tube was removed, the patient was brought back more gradually to a full diet.

The first modification was made because it was noted, in conjunction with Dr. Carswell (late roentgenologist to the Polyclinic Hospital), that food delivered to the third portion of the duodenum (the usual position of the tip during duodenal feedings) was carried in both directions in the bowel. A large proportion of the meal found its way back to the cap, and a small portion went through the pylorus into the stomach. This phenomenon, repeated frequently, would defeat the purpose of treatment, which was that of giving the diseased area complete rest. We allowed the tube to pass through the duodenum into the jejunum and administered feedings under fluoroscopic observation. The great bulk of the food entering the jejunum passed on down into the ileum. At intervals a small amount of the mixture would remain stationary near the tip of the tube, and very rarely there would occur a to and fro movement in the jejunum. This movement always took place in a comparatively small segment of bowel, seldom more than 6 inches. The caudad movement of the food mass frequently passed through 3 or 4 feet of bowel before stopping. In one case a small fragment of the mixture was observed to pass back into the third portion of the duodenum, but there was no appreciable movement observed toward the cap at any time when the food was introduced directly into the jejunum. This does not coincide with Wheelon's [2] observation. He injected the jejunum of one patient with barium and observed it moving rapidly along the intestine in both directions. That portion sent cephalad came to rest in the inferior flexure, the cap and the stomach. Wheelon did not describe the manner in which he introduced the barium, or the amount injected. Our observations were made on a thin mixture of milk and barium (7 ounces), allowed to run into the jejunum slowly by the siphon gravity method. The container was elevated only 4 inches above the patient's abdomen, and twenty minutes was consumed in the instillation of the 7 ounce mixture. The barium-milk mixture was introduced into the bowel during these observations in exactly the same manner in which we gave the jejunal feedings during the treatment. The mixture was not injected, and the bowel was not distended. Injecting the barium or distending the bowel is certainly more irritating, and might cause rather violent movements in both directions in the bowel.

One of the criticisms of duodenal feedings has been that the introduction of food into the intestine stimulates the flow of gastric juice. The same criticism can be made of mouth feedings. It seems logical to assume that the amount of gastric juice secreted will be less if the food does not enter the stomach. In order to neutralize any acidity that may be present, alkalis were administered between each feeding and a large dose after the last feeding at night. Bassler states that the presence of a tube in the stomach excites stomach motility. We have repeatedly observed the stomach with a tube in situ without noticing any active peristalsis after the second day of treatment.

The third point of variance with the usual method of duodenal feeding, the follow-up treatment, will be discussed later.

Ten cases have been selected for presentation. Gastric analyses, roentgen-ray examinations, occult blood determinations, and weight records were made before and at intervals after treatment. The string test was performed on six patients before and after treatment.

HISTORY

All patients were of the male sex. Their average age was 28½ years. The average duration of symptoms was five and one-half years. Every case selected was

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* Read before the American Congress of Internal Medicine, Philadelphia, April 5, 1923.

1. Einhorn, Max: Duodenal Alimentation, M. Rec. **78**: 92 (July 16) 1910.

2. Wheelon, Homer: Duodenal Motility, J. A. M. A. **80**: 615 (March 3) 1923.

in the active stage with severe subjective symptoms. In five of the cases of duodenal ulcer there were circumscribed areas of tenderness somewhere between the xiphoid and the navel. Two patients had generalized epigastric tenderness, and one was tender under the right costal margin. Paraspinal tenderness was present in two cases. The tonsils could not be excluded as a possible focus of infection in three cases. Two of the patients had tonsillectomies performed before undergoing treatment. One patient had repeated attacks of otitis media and externa one year previous to the onset of the gastro-intestinal symptoms.

DIAGNOSIS

The series includes three cases of uncomplicated duodenal ulcer; two of duodenal ulcer with cholecystitis; one each of duodenal ulcer with pulmonary tuberculosis, ancylostomiasis, and latent syphilis; one of pyloric ulcer, and one of prepyloric ulcer.

GASTRIC ANALYSIS BEFORE TREATMENT

Normal acidity curves were obtained from two patients. Hyperchlorhydria was present to some extent in seven cases. The acid values in the fasting stomach averaged: free acid, 55; acidity, 73. The average high point of acidity in nine cases tested was: free acid, 76; acidity, 104. One patient had a persistent hypersecretion, the average gastric residuum in the morning being 250 c.c. An extragastric type of curve was obtained in four of the cases of duodenal ulcer, i. e., the acidity instead of starting to decrease in from one hour to one and one-half hours after the Ewald meal, continued to rise, the last extraction showing the highest degree of acidity. The stepladder type of curve described by Lyon [3] and Best [4] was present in one case of bleeding ulcer. These observers describe this type of curve as being indicative of active ulcer, either preceding or following a hemorrhage.

STRING TEST BEFORE TREATMENT

The string test, following the technic of Einhorn,[5] was performed on six patients immediately before the treatment was instituted. The threads were all strongly positive for ulcer. The blood stains corresponded roughly to the roentgen-ray localization of the ulcer. Four inches was the average length of the blood stains on the thread. In the duodenal ulcer cases, the blood stain was on the part of the thread that was bile stained. There was one exception, in which the maximum stain was at a point 18 inches from the lips.

ROENTGEN-RAY EXAMINATION BEFORE TREATMENT

Drs. Carswell and Campbell of the Graduate School of Medicine, University of Pennsylvania, made the fluoroscopic and roentgen-ray examinations. Direct signs of peptic ulcer were reported in nine cases. The remaining patient had indirect fluoroscopic and roentgen-ray evidence of ulcer.

BLEEDING BEFORE TREATMENT

The stools in 70 per cent. of cases were either strongly positive for occult blood or contained gross blood. Two patients, in whom the stools were not examined for blood, had positive chemical tests for blood in the stomach. Ninety per cent. of the patients had blood in the stools or stomach or both.

BLOOD COUNT BEFORE TREATMENT

The anemia was not severe in any case. The average blood count for ten cases was: red blood corpuscles, 4,600,000; white blood corpuscles, 7,500; hemoglobin, 85 per cent.

TECHNIC OF THE FEEDING

The mechanics of the treatment is important, i. e., the selection of an appropriate tube and feeding apparatus and the manner of preparation and administration of the feedings. A tube that is to stay in the upper gastro-intestinal tract for two weeks should fulfil certain definite requirements. It should be soft and pliable, and as small in diameter as will accommodate the feeding mixture. The larger the tube, the more uncomfortable it will be for the patient. The likelihood of traumatizing the mucosa will be greater as the size of the tube increases. Since the introduction of the Einhorn three way valve apparatus, the argument of Gross and Held [6] for a larger tube to facilitate the entrance of the liquid and to avoid the use of a syringe is no longer tenable. The entrance of food with the use of the apparatus mentioned is uninterrupted, if the food is carefully prepared. A syringe is used only to start the siphon. Heavy tips like that designed by Gross should not be used. The lighter tips will pass through the pylorus just as easily and in the same time, if the technic of Lyon is followed. Of the many gastro-duodenal tubes on the market today, the Einhorn tube is more suitable for subgastric alimentation than any other that I have tried. The criticisms of this method have been made in large part by clinicians who have paid little attention to the mechanics of the treatment, using thick tubes or heavy tips, and feeding by injection or by the large gravity container.

As soon as the tube has entered the duodenum, the patient is instructed to push it in very slowly, until the tip has reached a point from 32 to 35 inches from the lips, depending on the size of the patient. This should bring the tip of the tube well into the jejunum. If the stethoscope does not positively reveal the position of the tube, resort should be had to the fluoroscope. When it has passed into the jejunum, the feedings are started. The feeding is made up of milk, 150 c.c.; one raw egg, and lactose, 15 gm. Straining through several layers of gauze insures an even mixture. Failure to take this precaution may result in clogging the tube. The vessel is placed in a bowl of hot water to warm the feeding and keep it at body temperature while it is running into the bowel. Injecting a small amount of salt solution and air after each feeding will prevent the milk from coagulating in the tube and keep it clean. A feeding is given every two hours, seven times daily. At least twenty minutes is allowed for the food to run into the bowel. The quantity of milk in each feeding is increased 30 c.c. daily until the patient is getting either 210 or 240 c.c. in each feeding, when it remains constant until the end of the treatment. This diet, if only 210 c.c. of milk is given at each feeding, has a value of more than 2,000 calories. According to Einhorn and Rosenbloom,[7] a patient on this diet maintains a positive nitrogen balance. Cream and butter may be added to the feedings, or an additional feeding may be admin-

3. Lyon, B. B. V.; Bartle, H. J., and Ellison, R. T.: Clinical Gastric Analysis, with Detail of Method and a Consideration of the Maximum Information to be Obtained, New York M. J. **114**: 272-280 (Sept. 7) 1921.

4. Best, E. S.: The Contents of the Stomach: Its Study and Interpretation, Am. J. M. Sc. **160**: 889 (Dec.) 1920.

5. Einhorn, Max: The Importance of the Thread Impregnation Test for the Recognition of Ulcers of the Upper Digestive Tract, M. Rec. **79**: 475 (March 18) 1911.

6. Gross, M. H., and Held, I. W.: Duodenal Alimentation, J. A. M. A. **65**: 520 (Aug. 7) 1915.

7. Einhorn and Rosenbloom: A Study of the Nitrogen Balance in Three Cases of Duodenal Alimentation, Am. J. M. Sc. **142**: 7 (July) 1911.

istered if hyperalimentation is desired. On the second day of treatment, a drip of salt solution is given through the tube. We usually start with 250 c.c. twice daily and gradually increase up to 750 c.c. twice daily. This will minimize the loss of weight due to fluid.

An alkaline powder, consisting of magnesium oxid, 3 grains (0.2 gm.), and bismuth subnitrate, 15 grains (1 gm.), was given by mouth in 1 ounce of water between feedings. Double the amount was administered after the last feeding at night. The care of the mouth is important to prevent soreness. A cleansing antiseptic mouth wash and gargle should be used every two hours. Gum chewing should not be permitted, as it may cause a reflex pouring out of gastric juice. Esophageal soreness, which occasionally arises, may be relieved by the oral administration of liquid petrolatum. Irregularities in evacuation of the bowels are frequent. Manipulation of the lactose content of the feeding and of the magnesia in the powder is usually sufficient to secure normal movements.

During the first week of the treatment, the patients were confined to bed. Starting with the eighth day, they were allowed to be up and about gradually. On the fourteenth day, when the tube was withdrawn, they had almost completely recovered their strength. After removal of the tube, these patients were given a modified Sippy plan of treatment. The outline of diet in each case was practically the same as that given below:

For the first three days, 8 ounces of milk and egg (1 raw egg) was alternated with 8 ounces of malted milk or equal parts of milk and cream every two hours. Eight feedings were given each day. The alkaline powder was administered between feedings.

From the fourth to the seventh day, 3 ounces of cooked cereal were substituted for three of the milk feedings. Crackers and butter were allowed with each of the milk feedings.

From the eighth to the fifteenth day the diet was approximately as follows:

Breakfast: Two soft boiled eggs, toast and butter, cooked cereal and one glass of milk.

10 a. m.: Egg and milk, crackers and butter.

Dinner: Puree of any vegetable; sweatbread, calf's brain, oyster stew or fresh fish; choice of one of the soft vegetables, as baked, mashed or creamed potato, asparagus, cauliflower or rice; lettuce with olive oil; choice of vanilla ice cream, custard, bread or tapioca pudding, stewed prunes or peaches.

4 p. m.: Malted milk, crackers and butter.

Supper: Choice of any of the clear soups, seasoned only with salt; coddled or poached egg on toast, lamb chop or white meat of chicken; soft vegetable; bread and butter; simple pudding; cocoa or milk or weak tea with cream.

9 p. m.: Egg and milk.

A powder was given between the feedings and before retiring. The between meal feedings were insisted on for at least two months. Additions to the diet were made from time to time, depending on the progress of the patient as shown by the roentgen ray, gastric analysis and subjective improvement.

CONDITION OF PATIENTS DURING TUBE TREATMENT

Seven patients experienced alleviation of their symptoms on the second day of treatment. One patient, who had been vomiting almost continuously for two days, ejected the tube twice. We persisted, and after the fourth day of treatment the symptoms subsided. Another patient with hematemesis and severe cramps continued to have pain for one week after the tube was passed. The tube came back into the stomach twice. It was possible to elicit a splashing sound from the stomach for thirteen days. The quantity of lactose in the feeding had to be changed in five patients, owing to irregular bowel movements. Slight soreness of the throat was present in three cases during the first week. The pharynx and pillars were red and congested from irritation of the tube. Moving the tube to the opposite side of the mouth and applying protargin mild solution, 25 per cent., combated the condition successfully. The patient was instructed always to keep the tube on the side of the mouth, back of the teeth, in such a position that the tube passed behind the last molar tooth. It seemed to make a place for itself and caused very little inconvenience in the average patient. It is advisable to fasten the tube to the cheek with adhesive plaster for the first few nights to obviate any possibility of its coming out during the night.

We were unable to elicit a splashing sound from the stomach of seven patients after the first twenty-four hours. Two of the remaining had an occasional splash until the end of the first week. The stomach of one patient splashed up to the thirteenth day. It would seem, therefore, that in most patients there is no appreciable quantity of gastric juice secreted during the tube treatment.

The quick relief from pain and vomiting that is obtained by this method is very gratifying to the patient. Hunger and thirst usually disappear on the second or third day. Nine of these patients were in the ward of a large hospital. They saw their neighbors' trays passing back and forth without expressing any desire for food.

GASTRIC ANALYSIS AFTER TREATMENT

Of the nine patients tested before treatment, five were reexamined one month later, five after from three and six months, and two at the end of a year. The average free acidity of the patients tested one month after treatment was 74, or only 2 points lower than that obtained before treatment (as shown in the accompanying tables). After three months the average free acidity dropped to 64, but after six months it climbed back to 79, or 3 degrees higher than the figure obtained before treatment. It has been noted that there is no consistent trend downward in the acidity after jejunal feedings until after six months have elapsed. The patients tested one year after treatment had an average free acidity of 14 points lower than their pretreatment figure. The patient having a persistent hypersecretion before treatment averaged only 40 c.c. of gastric residuum at three subsequent examinations. Two of the duodenal ulcer patients having extragastric curves presented curves with normal contours when examined one month after treatment.

STRING TEST AFTER TREATMENT

The thread impregnation test of Einhorn was done on six patients immediately before and thirty-six hours after treatment. Only one patient had an entirely negative string after the treatment. Five of the threads were blood stained. In each case, however, the stain was less intense than before. The average length of the stain was 1½ inches, as compared with 4 inches before treatment.

ROENTGEN-RAY EXAMINATION AFTER TREATMENT

Nine patients were reexamined within one month after the termination of the feedings, most of them within a few days. Seven patients having direct signs of ulcer before treatment had no evidence of a lesion

at this examination. There was roentgen-ray evidence of a persistence of the lesion in two cases. One of these patients had chronic cholecystitis. The roentgenologist could not exclude adhesions as a causative factor. The examination on this patient was repeated after six months had elapsed. The deformity was still present, although there was complete absence of duodenal tenderness. It is difficult to account for the difference between the roentgen-ray findings and the string test unless the granulations of a healing ulcer are capable of staining the thread. The string test is very valuable in those cases in which the roentgenologist cannot find definite pathologic changes in a case which presents rather conclusive symptoms. A positive string in such cases warrants a diagnosis of ulcer.

WEIGHT

The average weight for the ten patients was 130⅕ pounds (59.3 kg.) before treatment and 128 pounds (57 kg.) after treatment. There was a loss of weight of 2⅖ pounds (1.3 kg.) during the tube treatment. No effort was made to overfeed; we were satisfied in each case with a diet approximating 2,000 calories. The small amount of weight lost was frequently regained before the patient left the hospital. The average weight for the ten patients one month after the tube was removed was 136 pounds (61.7 kg.) or a gain of 5⅕ pounds (2.36 kg.) over the original weight. After six months there was an average gain of 13 pounds (5.9 kg.). Two patients weighed after a year showed an average gain of 20 pounds (9 kg.).

TABLE 1.—*Findings and Treatment*

Case Number	Age	Duration of Symptoms Years	Diagnosis	Symptoms	Gastric Analysis (Before Treatment)	String Test Before Treatment	Roentgen Ray Before Treatment	Bleeding Before Treatment	Treatment
1	30	5	Duodenal ulcer	Triad (pain, vomiting, hematemesis); circumscribed tenderness, abdominal and spinal	Hyperchlorhydria, extragastric curve, occult blood plus three	Positive, stain 1 in. long 23 in. from lips	Deformed cap, hyperperistalsis	Tarry stools	Jejunal feedings; symptom free second day
2	23	13	Duodenal ulcer	Triad; circumscribed abdominal tenderness	Hyperchlorhydria, hypersecretion, occult blood plus three	.....	Niche in cap, duodenal irritability	Feces, occult blood plus	Jejunal feedings; symptom free second day
3	27	3	Duodenal ulcer; chronic cholecystitis	Pain, vomiting, fulness, belching; circumscribed abdominal tenderness	Acidity normal limits	.....	Persistent incisura, lesser curvature of cap	None	Jejunal feedings; bile drainage; autogenous vaccine; symptom free, ulcer symptoms second day
4	27	4	Duodenal ulcer; chronic cholecystitis	Pain, vomiting, gas; circumscribed tenderness under R.C.M.	Hyperchlorhydria, hypomotility, extragastric curve, occult blood plus	.....	Persistent filling defect in cap	No record	Jejunal feedings; bile drainage; vaccine; free from ulcer symptoms second day
5	27	7	Duodenal ulcer	Triad; circumscribed abdominal tenderness	Hyperchlorhydria, stepladder curve, occult blood plus two	Positive, stain 18-23 in. from lips	Niche, postpyloric; 50% retention	Three positive stools	Jejunal feedings; symptom free second day
6	30	½	Duodenal ulcer; ancylostomiasis	Cramps, pyrosis, gas, drowsiness	.....	Positive, 15-22 in. from lips	Filling defect, superior border of duodenal cap	Three positive stools	Jejunal feedings; intraduodenal instillation of carbon tetrachlorid; esophageal soreness first week
7	28	7	Duodenal ulcer; pulmonary tuberculosis	Persistent vomiting and regurgitation; pylorospasm, cardiospasm	Hyperchlorhydria, occult blood plus two	Positive, 21-27 in. from lips	Duodenal irritability, hyperperistalsis, pyloric block	No record	Jejunal feedings; nausea, vomiting first 5 days; symptom free thereafter
8	33	4	Duodenal ulcer; syphilis	Pain, circumscribed abdominal tenderness	Hyperchlorhydria, extragastric curve, occult blood plus two	.....	Filling defect, cap	Tarry stools	Jejunal feedings; symptom free second day
9	29	4	Pyloric ulcer	Pain, pyrosis, vomiting; epigastric tenderness	Normal	Positive, 22-23 in. from lips	Filling defect, greater curvature, pyloric	Two positive stools	Jejunal feedings; nausea first 3 days; symptom free
10	29	9	Prepyloric ulcer	Triad; epigastric tenderness; spinal tenderness	Hyperchlorhydria, occult blood plus four	Positive, 18½-22 in. from lips	Niche, lesser curvature, incisura opposite	Tarry stools	Jejunal feedings; vomiting, pain first week; symptom free thereafter

Situations of that nature become less frequent as the roentgenologist's gastro-intestinal experience increases. We do not feel that it is necessary for an ulcer to be bleeding to yield a positive thread, as such a result has been obtained without being able to find any evidence of bleeding in either the stomach or the feces.

BLEEDING AFTER TREATMENT

The feces of each patient were examined after the jejunal feedings. In nine cases, one or more stools were found to be negative for occult blood with benzidin, in spite of the fact that five of these patients had positive string tests. One stool was reported as faintly positive. One of the striking features of the value of the fractional gastric analysis was the markedly positive occult blood reactions before treatment and the negative findings after treatment, except in one case in which trauma could not be excluded.

DURATION OF DISABILITY

The average number of days lost from work in the series was twenty-three; in other words, the illness represented an economic loss of slightly more than three weeks.

ULTIMATE RESULTS

Of the five cases in which there were circumscribed areas of tenderness, there was complete absence of tenderness in four after the feedings. One patient was still tender to very deep pressure. The generalized epigastric tenderness present in two cases could not be elicited after treatment. Spinal tenderness, complained of by two, was practically gone after the feedings.

Patients 1, 2, and 5 with uncomplicated duodenal ulcer are free from symptoms after six, fifteen and two months, respectively. Patients 1 and 2 had finished courses of medical management less than six months previously, but had suffered a recurrence of symptoms.

Patients 3 and 4 had duodenal ulcer complicated by cholecystitis. They wanted to give the medical treatment a trial before resorting to surgery. They have been entirely free from ulcer symptoms to date, twelve and six months, respectively. Both of them complain of flatulence and fulness at times. They were given an autogenous vaccine prepared from the bile, together with nonsurgical drainage of the gall tract, and seem to be improving.

Patient 6, who had positive roentgen-ray evidence of duodenal ulcer, was found to be infested with hookworm. The ova of *Necator americanus* were found in the stool after the feedings were started. He was given the regular plan of treatment. Carbon tetrachlorid was instilled into the duodenum through the tube to combat the parasite. Stools were diligently searched for ova the following week, but none were found.

CONCLUSIONS

Ten patients selected for jejunal feedings had all the classical signs and symptoms of peptic ulcer of the stomach or duodenum with roentgen-ray confirmation. Nine were treated in the ward of a hospital with ordinary ward care without a special nurse. The time that has elapsed since treatment is too brief to warrant a final prognosis. However, 70 per cent. of cases are clinical cures to date. Two of the remaining patients are still complaining of mild dyspepsia. This may be accounted for by the chronic inflammation of the gallbladder that was present. They have been free from ulcer symptoms. The patient with hookworm relapsed two weeks after treatment. It is possible that we were dealing with a simple case of ancylostomiasis, the parasite being responsible for the duodenal deformity, and not a peptic ulcer.

TABLE 2.—*Results*

Case Number	Splashing Sound During Treatment	Symptoms (Immediately after Treatment)	Gastric Analysis (1 month after Feedings)	String Test (Immediately After)	Roentgen Ray (Immediately After)	Bleeding After Feedings	Ultimate Result
1	Absent	None; tenderness not present	10° higher; occult blood negative	Negative	Negative	None	Symptom free, 6 months
2	Absent	None; tenderness not present	Acid 10° lower; no hypersecretion; occult blood negative	.....	Negative	None	Symptom free, 16 months
3	Absent	Pain, vomiting gone; belching persists; tenderness not present	Acid 10° higher	.....	Negative	None	Ulcer symptoms absent 1 year; gas present for 6 months
4	Absent	Pain, vomiting gone; gas persists; tender to deep pressure	Acid 10° lower; curve not epigastric; occult blood negative	.....	Defect persists adhesion?	None	Occasional lumbar pain; absence of ulcer symptoms, 6 months
5	Absent	None; tenderness not present	.....	Positive, stain 22-23 in. from lips	Niche absent, no retention	None	Symptom free, 2 months
6	Absent	Cramps, pyrosis, gas gone; drowsiness persists	.....	Positive, stain 16-21 in from lips	Negative	None	Return of symptoms 2 weeks after treatment; hookworm ova found
7	Occasionally present during first week	None	.....	Positive, stain 22-23 in. from lips	Pylorospasm persists	None	Symptom free, 6 months
8	Absent	None; tenderness not present	Acidity same	.....	Negative	None	Symptom free, 6 months
9	Occasionally present during first week	Old symptoms gone; dragging sensation relieved by belt	.....	Positive, 22-22½ in. from lips.	Defect persists	None	Symptom free, 3 months
10	Present for 13 days	None; tenderness gone	.....	Positive, 19-21 in. from lips	Negative	One positive stool	Symptom free, 3 months

This patient left the hospital feeling well. Two weeks later he contracted acute follicular tonsillitis. All of the abdominal symptoms returned with the same degree of intensity. Ova were again recovered from the feces.

Patient 8, who had duodenal ulcer, was free from symptoms after six months, and had gained 22 pounds (10 kg.). Four months after treatment a blood Wassermann report, which had been mislaid, was found to be positive. The syphilitic condition apparently had nothing to do with the gastro-intestinal symptoms.

Patient 7, with duodenal ulcer and incipient pulmonary tuberculosis, had been vomiting frequently for six months, and had lost 25 pounds (11.3 kg.). For two weeks previous to his admission, practically everything taken by mouth was ejected. The vomiting was controlled by the jejunal feedings. He has gained 26 pounds (11.8 kg.) and has had no return of symptoms to date (six months). The result obtained with this boy was gratifying, as he was placed on his feet and strengthened sufficiently to fight his pulmonary condition.

Patients 9 and 10 were entirely well three months after treatment. Their ulcers were intragastric, one in the pylorus, the other prepyloric.

There was no definite reduction in stomach acidity until after six months following the tube treatment. Several cases tested after nine months all showed a trend downward in acidity.

Five out of six cases had slightly positive string tests immediately after treatment. The average peptic ulcer is probably not completely healed after the jejunal feedings. The persistence of a positive string test together with hyperchlorhydria emphasizes the importance of careful management after the tube is removed. However, the preponderance of negative roentgen-ray findings after treatment would lead us to believe that the healing must be far advanced. In support of the latter contention, we found complete absence of occult bleeding after treatment in 90 per cent. of cases. The other patient had one very weakly positive stool after treatment, and two subsequent negatives.

Jejunal alimentation is a valuable adjunct to the medical treatment of peptic ulcer. The patient can be rendered symptom free without much loss of weight in a shorter period of time than by following one of the other methods. At the termination of the jejunal feedings, the patient should be dieted and the stomach acidity treated with alkalis until the gastric chemistry approaches normal. The impression that two weeks of

bowel feeding constitutes a cure has subjected this method to justifiable criticism. As a method of starting a medical cure, it compares favorably with any other plan and has the advantage that it requires less time.

1923 Spruce Street.

SIMPLE DIET CHARTS FOR DIABETES OF ALL GRADES OF SEVERITY *

FRANCIS H. McCRUDDEN, M.D.
BOSTON

Diabetes is characterized by decreased glucose-oxidizing capacity.

Treatment consists in diminishing the glucose supply and increasing the glucose-oxidizing capacity until equilibrium is reestablished between the work to be done and the capacity to do it.

Decreased glucose metabolism lowers fat-oxidizing capacity, excess fat being oxidized only as far as oxybutyric acid, diacetic acid, and acetone; treatment includes, therefore, limiting the fat intake to the fat-oxidizing capacity.

Diabetic therapeutics implies quantitative understanding of glucose and fat sources; and a knowledge

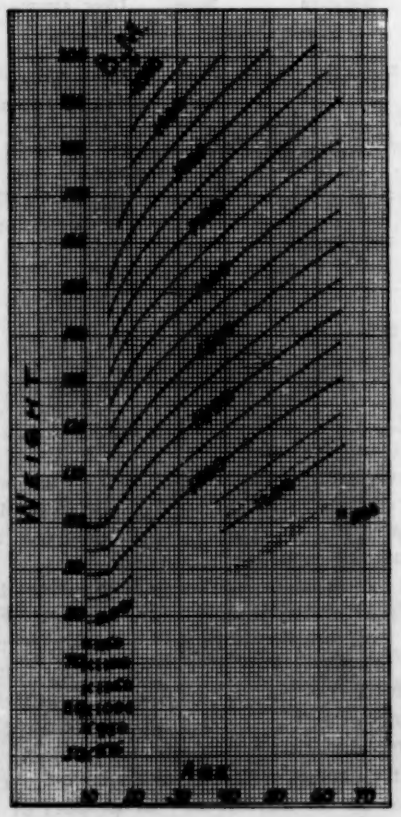


Chart 1.—Basal metabolism, age and weight. The age in years, as abscissa, and weight in pounds, as ordinate, define a point; the curve nearest this point shows the basal metabolism in calories.

of the glucose and fat oxidizing capacity and the requirements for maintenance in the case under treatment.

GLUCOSE SOURCES

A totally diabetic animal—after pancreatectomy, or phlorizin administration—cannot oxidize any glucose; all that is formed is excreted.

* From the House of the Good Samaritan.

Any carbohydrate administered to such an animal appears in the urine as glucose:

$$G = C,$$

where G indicates the amount of glucose formed, and C the amount of carbohydrate administered.

TABLE 1.—*Basal Metabolism for Different Ages and Weights* *

Weight, Pounds	Age 10	15	20	25	30	35	40	45	50	55	60	65
50	875	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
60	1,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70	1,110	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
80	1,210	1,198	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
90	1,310	1,318	1,260	.....	.....	.....	.....	.....	.....	.....	.....	.....
100	1,405	1,400	1,330	1,300	1,268	1,235	1,207	1,188	1,163	1,136	1,113	1,087
110	.....	1,464	1,412	1,372	1,348	1,300	1,286	1,260	1,234	1,209	1,184	1,160
120	.....	1,560	1,492	1,448	1,412	1,380	1,348	1,320	1,296	1,272	1,245	1,222
130	.....	1 638	1,568	1,524	1,485	1,456	1,423	1,398	1,361	1,345	1,321	1,294
140	.....	1,717	1,642	1,599	1,562	1,528	1,496	1,469	1,441	1,415	1,390	1,365
150	.....	1,797	1,714	1,672	1,634	1,601	1,568	1,542	1,513	1,486	1,461	1,435
160	.....	.....	1,784	1,741	1,704	1,669	1,636	1,608	1,580	1,553	1,527	1,502
170	.....	.....	1,858	1,813	1,775	1,740	1,706	1,678	1,645	1,622	1,596	1,571
180	.....	.....	1,923	1,880	1,838	1,805	1,770	1,733	1,710	1,686	1,658	1,632
190	.....	.....	1,993	1,946	1,905	1,870	1,835	1,806	1,774	1,750	1,720	1,697
200	.. ..	.....	2,054	2,010	1,967	1,932	1,896	1,870	1,828	1,811	1,783	1,757

* Calculated for age 10 according to Benedict and Harris; for ages 15 to 65, by both Benedict and Dreyer methods, and the average of the two taken.

When such an animal is receiving no food other than protein, glucose equivalent to 58 per cent. of the protein metabolized appears in the urine:

$$G = 0.58\ P,$$

where P indicates the amount of protein metabolized. The source of this glucose is the nitrogen-free part of the protein molecule.

The glycerin radical of the fat molecule gives glucose:

$$G = 0.1\ F,$$

where F is the amount of fat metabolized.

The total glucose formed on a mixed diet is

$$G = 1.0\ C + 0.58\ P + 0.1\ F \qquad \text{Equation 1}$$

FAT-OXIDIZING CAPACITY

Experiments of Shaffer [1] and Woodyatt [2] indicate that the body can oxidize 1.5 gm. of fat for each gram glucose catabolized.

$$Ac = 1.5\ G, \qquad \text{Equation 2}$$

where Ac is the quantity of fat (as fatty acid) and G the quantity of glucose oxidized, expresses the maximal allowable fat.

FAT SOURCES

Ninety per cent. of the fat and 46 per cent. of the protein ingested may serve as source of fatty acid,

$$Ac = 0.9\ F + 0.46\ P \qquad \text{Equation 3}$$

MAINTENANCE REQUIREMENTS: CALORIES

If body tissue is to be spared, the intake in calories must equal the output. The output varies with the activities; but at complete rest it is a constant—the basal metabolism—determined by weight, age, sex and size.

Table 1 and Chart 1 show the basal metabolism of males calculated according to Benedict [3] and Dreyer [4]

1. Shaffer, P. A.: Antiketogenesis: I, An In Vitro Analogy, J. Biol. Chem. **47**: 433 (July) 1921; II, The Ketogenic-Antiketogenic Balance in Man, ibid. **47**: 449 (July) 1921; III, Calculation of the Ketogenic Balance from the Respiratory Quotients, ibid. **49**: 143 (July) 1921; IV, The Ketogenic-Antiketogenic Balance in Man and Its Significance in Diabetes, ibid. **54**: 399 (Oct.) 1922.

2. Woodyatt, R. T.: Objects and Methods of Diet Adjustment in Diabetes, Arch. Int. Med. **28**: 125 (Aug.) 1921.

3. Harris, A., and Benedict, F.: A Biometric Study of Basal Metabolism in Man, Pub. 279, Carnegie Institute of Washington, 1919. Benedict, F., and Talbot, F.: Metabolism and Growth from Birth to Puberty, Pub. 302, Carnegie Institution of Washington, 1921.

4. Dreyer, Georges: The Normal Basal Metabolism in Man, and Its Relation to the Size of the Body and Age, Expressed in Simple Formulae, Lancet **2**: 289 (Aug. 7) 1920.

and then averaged. Since a deviation of 20 per cent. from average weight for height influences the basal metabolism only about 5 per cent., the factor for height, or linear dimension in some form, which appears in all accurate formulas, is omitted as an unnecessary refinement for present purposes. A correction of 10 per cent. should be subtracted for females.

Each gram of protein or carbohydrate furnishes 4 calories, each gram of fat, 9 calories. The minimal intake must be

$$4\,C + 4\,P + 9\,F = B \qquad \text{Equation 4}$$

where B is the basal metabolism in calories, and C, P and F the carbohydrate, protein and fat, respectively, in grams.

MAINTENANCE REQUIREMENTS: PROTEIN

The minimal protein requirement, the wear and tear quota that will just maintain nitrogen equilibrium, is about 0.3 gm. of protein per pound of body weight.[5]

$$P = 0.3\,W \qquad \text{Equation 5}$$

The basal metabolism in calories averages for all ages about ten times the weight in pounds; and the same factors—age, sex, overweight and underweight—that affect the ratio of basal metabolism to weight probably likewise affect the ratio of minimal protein requirement and weight in the same direction, and, roughly speaking, to the same extent. We may, therefore, replace W in Equation 5 by 0.1 B and get

$$P = 0.03\,B \qquad \text{Equation 6}$$

MAINTENANCE REQUIREMENTS: CARBOHYDRATE AND FAT

Replacing Ac and G in Equation 2 with the values for these factors given in Equations 3 and 1, we get

$$0.9\,F + 0.46\,P = 1.5\ (1.0\,C + 0.58\,P + 0.1\,F),$$

or, simplifying,

$$0.75\,F - 0.41\,P - 1.5\,C = 0 \qquad \text{Equation 7}$$

Replacing P in this equation by its value 0.03 B (Equation 6), we get

$$0.75\,F - 0.41\ (0.03\,B) - 1.5\,C = 0,$$

or

$$0.75\,F - 1.5\,C = 0.0123\,B \qquad \text{Equation 8}$$

And replacing P in Equation 4 by its equivalent 0.03 B, we get

$$4\,C + 4\ (0.03\,B) + 9\,F = B$$

or

$$4\,C + 9\,F = 0.88\,B \qquad \text{Equation 9}$$

Equations 8 and 9 give F and C in terms of B. Solving, we get

$$C = 0.0322\,B \qquad \text{Equation 10}$$

and

$$F = 0.083\,B \qquad \text{Equation 11}$$

MAINTENANCE VALUES FOR PROTEIN, CARBOHYDRATE AND FAT

Equations 6, 10 and 11 mean that the requirement to maintain basal metabolism is 0.03 B gm. of protein, 0.0322 B gm. of carbohydrate and 0.083 B gm. of fat, where B is the basal metabolism in calories. These may be called the maintenance values for protein, carbohydrate and fat. If a patient cannot metabolize the glucose derived from such a diet, he will need insulin for bare maintenance; if he can metabolize this amount of glucose, he will not need insulin for bare maintenance.

It may be alleged that since these values for F and C depend on selecting 0.03 B as the optimal value of P, other equally suitable values of F and C might be obtained by making P larger. But such a change is not compatible with the requirement of getting the greatest caloric potency with minimal glucose formation. Suppose, for example, we increase the protein

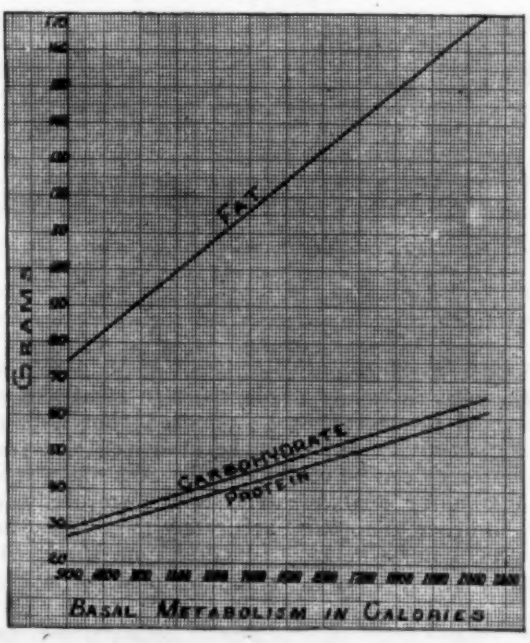


Chart 2.—Maintenance values for protein, carbohydrate and fat. The optimal amount of fat, carbohydrate, and protein in grams to just maintain the basal metabolism is given by the ordinates of points on the three curves whose abscissa is the basal metabolism in calories.

intake 1 gm., thereby increasing the glucose supply 0.58 gm. and the fat supply 0.46 gm. Since the oxidation of 0.58 gm. of glucose permits the oxidation of $(1.5 \times 0.58 =)$ 0.87 gm. of fat, we may give 0.41 gm. of fat in addition to the 0.46 which comes from the protein. The corresponding caloric potency is $(1.0 \times 4.0) + (0.41 \times 9) = 7.69$ calories. But if, instead of increasing the glucose intake 0.58 gm. in the form of 1 gm. of protein, we increase it in the form of 0.58 gm. of carbohydrate and add the permissible $(0.58 \times 1.5 =)$ 0.87 gm. of fat, the corresponding increase in caloric potency is $(0.58 \times 4) + (0.87 \times 9) = 10.15$ calories, or 30 per cent. more; 0.03 B is, therefore, not only the

TABLE 2.—*Average Height and Weight*

Children		Adults	
Height	Pounds	Height	Pounds
4 feet	55	5 feet	120
4 feet 2 inches	60	5 feet 1 inch	124
4 feet 4 inches	65	5 feet 2 inches	128
4 feet 6 inches	70	5 feet 3 inches	132
4 feet 7 inches	75	5 feet 4 inches	136
4 feet 8 inches	80	5 feet 5 inches	140
4 feet 10 inches	85	5 feet 6 inches	144
4 feet 11 inches	90	5 feet 7 inches	150
5 feet	100	5 feet 8 inches	156
5 feet 1 inch	105	5 feet 9 inches	162
5 feet 2 inches	110	5 feet 10 inches	168
5 feet 3 inches	115	5 feet 11 inches	174
5 feet 4 inches	120	6 feet	180
5 feet 5 inches	125	6 feet 1 inch	186
5 feet 6 inches	130	6 feet 2 inches	192
5 feet 7 inches	135		
5 feet 8 inches	140		

5. Sherman, H. C.: Protein Requirement of Maintenance in Man and the Nutritive Efficiency of Bread Protein, J. Biol. Chem. **41**: 97 (Jan.) 1920. Marsh, P. L.; Newburgh, L. H., and Holly, L. E.: The Nitrogen Requirement for Maintenance in Diabetes Mellitus, Arch. Int. Med. **29**: 97 (Jan.) 1922.

minimal but also the optimal value for P; and 0.0322 B and 0.083 B are the optimal values for C and F.

Table 3 and Chart 2, showing a variation of some hundred per cent. in the maintenance values for P, C, and F corresponding to different values for basal metabolism, bring out clearly the advisability of individualizing diabetic diets to correspond with basal metabolism.

TABLE 3.—*Maintenance Values for Protein, Carbohydrate and Fat*

Basal Metabolism in Calories, B	Protein in Grams, P_m	Carbohydrate in Grams, C_m	Fat in Grams, F_m
900	27	29	75
1,000	30	32	83
1,100	33	35	91
1,200	36	39	100
1,300	39	42	108
1,400	42	45	116
1,500	45	48	124
1,600	48	51	133
1,700	51	55	141
1,800	54	58	149
1,900	57	61	158
2,000	60	64	166

QUANTITATIVE DIAGNOSIS IN GLUCAL UNITS

In chronic disease, as a rule, the structural integrity of damaged tissue cannot be restored; but impaired physiologic activity can often be improved and functional efficiency can be reestablished. Anatomic, structural, *qualitative diagnosis* does not, therefore, carry us far; in order to appraise accurately the effectiveness of treatment in influencing functional efficiency, what is needed is a physiologic, functional, *quantitative diagnosis*. A quantitative diagnosis is an estimate of functional efficiency; it should take the form of a statement of capacity in terms of requirements.

$$\text{Functional efficiency} = \frac{\text{Capacity}}{\text{Requirements}}$$

One of the most important objectives of research in chronic disease is that of devising more precise methods of quantitative diagnosis.

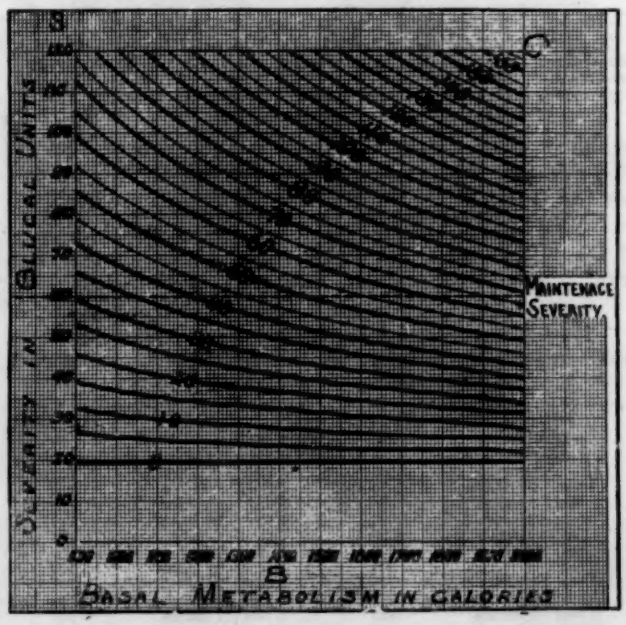


Chart 3.—Carbohydrate in terms of basal metabolism and severity. The basal metabolism in calories, as abscissa, and the severity in glucal units, as ordinate, define a point; the curve nearest this point shows the optimal amount of carbohydrate in grams.

In diabetes, capacity is glucose-oxidizing capacity in grams; maintenance requirement is basal metabolism in calories. Determination of the ratio $\frac{G}{B}$ is a quantitative diagnosis. The term glucal (from glucose-calories) will be useful in referring to the index $\frac{G}{B} \times 1{,}000$ (the thousandfold multiplication being for the purpose of getting a whole number). For a case in which the critical values are maintenance values

$$G = 1.0\ (0.0322\ B) + 0.58\ (0.03\ B) + 0.1\ (0.083\ B)$$
$$= 0.0579\ B$$

The severity of such a case is, therefore, 58 glucal units.[5]

6. $\frac{4\,C_c + 4\,P_c + 9\,F_c}{B}$, the maximal possible caloric intake that does not cause glycosuria or ketonuria, divided by the basal metabolism, is a more rational index of capacity in terms of requirements than $\frac{G}{B}$. Strictly speaking, either of these ratios is an index of efficiency rather than its mathematical reciprocal severity. But these academic objections to $S = \frac{G}{B}$ are more than balanced by certain practical advantages.

CRITICAL VALUES, C_e, P_e AND F_e, IN ANY CASE

As shown farther back, the optimal amount of protein in any case in which considerable dietetic restriction is essential is 0.03 B; in very mild cases the protein may be somewhat increased. The optimal values for carbohydrate and fat may be calculated as follows:

$$S = \frac{G}{B}$$

where S is the severity of the disease in glucal units, or

$$G = SB$$

Substituting, in Equation 1, SB for G, and 0.03 B for P, we get

$$SB = C + 0.0174\,B + 0.1\,F \qquad \text{Equation 12}$$

And substituting 0.03 B for P in Equation 4, we get

$$0.75\,F - 1.5\,C = 0.0123\,B \qquad \text{Equation 13}$$

Equations 12 and 13 give C and F in terms of S and B. Solving,

$$C = (0.833\,S - 0.01587)\,B \qquad \text{Equation 14}$$
$$F = (1.667\,S - 0.0153)\,B \qquad \text{Equation 15}$$
$$S = \frac{C + 0.01587\,B}{0.833\,B} \qquad \text{Equation 16}$$
$$S = \frac{F + 0.0153\,B}{1.667\,B} \qquad \text{Equation 17}$$

Tables 4 and 5 and Charts 3 and 4 show the values for F and C tabulated and charted from Equations 14 to 17. It can be shown that when

$$4\,C_c + 4\,P_c + 9\,F_c = 2\,B$$

then

$$S = 114$$

that is, when the severity is 114 glucal units, a diet equivalent to twice the basal requirements can be administered; the tables and charts are, therefore, carried up to S = 120.

The desirability of individualizing diabetic diets according to basal requirements is illustrated by considering the diet 0.03 B gm. of protein, 70 gm. of carbohydrate and 160 gm. of fat; this just covers the basal requirements of an individual of B = 2,000, but is double the basal requirements—sufficient to support full activity—of a person of B = 900.

DIAGNOSTIC PROCEDURE

After a qualitative diagnosis of diabetes has been made, next in order is a quantitative diagnosis:

A diet consisting of the critical amounts of carbohydrate, protein and fat for maintenance (Chart 2)

should be prescribed; at once in an uncomplicated case, by a more gradual approach if acidosis or infection is present. If the urine remains sugar free on this maintenance diet, the carbohydrate and fat intake should be increased by amounts corresponding to from 5 to 10 glucal units each day (Charts 3 and 4) until sugar is excreted. If sugar is excreted on a maintenance diet, the fat and carbohydrate should be decreased by amounts corresponding to from 5 to 10 glucal units each day until the urine is sugar free.

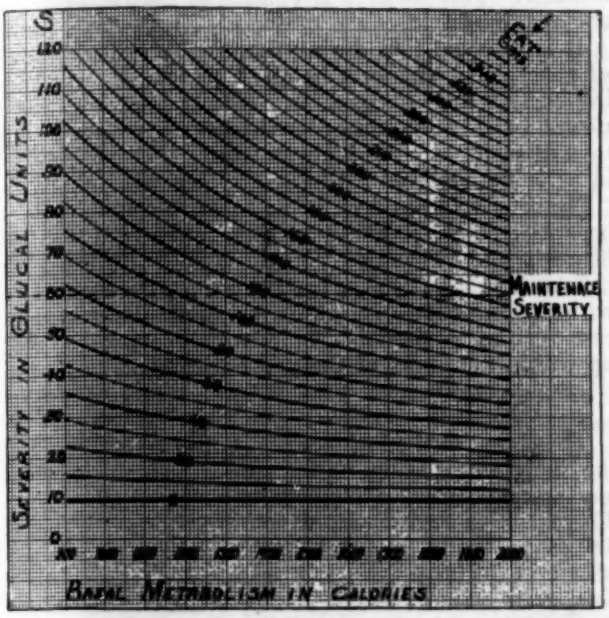


Chart 4.—Fat in terms of basal metabolism and severity. The basal metabolism in calories, as abscissa, and the severity in glucal units, as ordinate, define a point; the curve nearest the point shows the optimal amount of fat in grams.

The charts will show the severity in glucal units corresponding to the diet which just gives glycosuria.

THERAPEUTIC PROCEDURE

In cases in which the functional efficiency is better than 58 glucal units, the patient should be kept on a diet corresponding to the highest glucal value that will not cause glycosuria. In cases in which the functional efficiency is less than 58 glucal units, the intake should

TABLE 4.—*S in Terms of C and B;* $S = \frac{C + 0.01587\,B}{0.833\,B}$

Calories	c=0 S	c=10 S	c=20 S	c=30 S	c=40 S	c=50 S	c=60 S	c=70 S	c=80 S	c=90 S	c=100 S
900	19.1	32.4	45.8	59.0	72.5	85.8	99.2	112.4	125.7	139.0	152.6
1,000	19.1	31.1	43.1	55.1	67.1	79.0	91.0	103.0	115.0	127.0	139.0
1,100	19.1	30.0	40.8	52.1	62.6	73.5	84.5	95.3	106.1	117.3	128.0
1,200	19.1	29.1	39.1	49.1	59.1	69.1	79.1	89.1	99.1	109.1	119.1
1,300	19.1	28.3	37.5	46.7	56.0	65.2	74.5	83.7	93.1	102.1	111.4
1,400	19.1	27.7	36.2	44.8	53.4	62.0	70.5	79.1	87.4	96.3	104.7
1,500	19.1	27.1	35.3	43.1	51.1	59.0	67.1	75.0	83.0	91.0	98.8
1,600	19.1	26.4	34.3	41.6	49.1	56.6	64.0	71.6	79.0	86.5	94.0
1,700	19.1	26.1	33.2	40.3	47.3	54.3	61.4	68.5	75.6	82.7	89.6
1,800	19.1	25.7	32.4	39.1	45.7	52.4	59.1	65.7	72.3	79.0	85.7
1,900	19.1	25.3	31.6	38.0	44.3	50.6	57.0	63.3	69.6	75.8	82.3
2,000	19.1	25.1	31.1	37.1	43.1	49.1	55.1	61.1	67.0	73.1	79.0

be made at least of maintenance values, and the glucose-oxidizing capacity should be raised to a corresponding value by the administration of insulin in gradually increasing dosage until the urine is sugar free.

COMMENT

The calculations, tables and charts shown here are based on the present most acceptable ketogenic and antiketogenic values for carbohydrate, protein and fat, and the present generally accepted value for the basal metabolism, minimal protein requirement, and optimal ketogenic-antiketogenic ratio. Further research may somewhat modify these values and, therefore, the exact quantities of protein, carbohydrate and fat in any individual case; and it may lead us to modify certain

TABLE 5.—*S in Terms of F and B;* $S = \frac{F + 0.0153\,B}{1.667\,B}$

Calories	F=0 S	F=20 S	F=40 S	F=60 S	F=80 S	F=100 S	F=120 S	F=140 S	F=160 S	F=180 S	F=200 S
900	9.2	22.5	35.9	49.2	62.5	75.7	89.1	102.4	115.8	129.1	142.0
1,000	9.2	21.2	33.2	45.2	57.2	69.2	81.2	93.2	105.1	117.2	129.1
1,100	9.2	20.1	30.1	41.8	52.8	63.6	74.5	85.4	96.3	107.2	118.3
1,200	9.2	19.2	29.2	39.2	49.2	59.2	69.2	79.2	89.2	99.2	109.2
1,300	9.2	18.4	27.6	36.8	46.1	55.2	64.5	73.7	82.8	92.1	101.3
1,400	9.2	17.7	26.3	34.9	43.4	52.1	60.6	69.2	77.7	86.2	95.7
1,500	9.2	17.2	25.2	33.1	41.2	49.2	57.2	65.2	73.2	81.2	89.2
1,600	9.2	16.6	24.1	31.6	39.1	46.7	54.2	61.7	69.1	76.6	84.1
1,700	9.2	16.2	23.3	30.3	37.5	44.4	51.6	58.5	65.6	72.7	79.8
1,800	9.2	15.8	22.5	29.2	35.8	42.5	49.2	55.8	62.5	69.2	75.5
1,900	9.2	15.5	21.8	28.1	34.4	40.7	47.0	53.4	59.6	65.9	72.3
2,000	9.2	15.2	21.2	27.2	33.2	39.2	45.2	51.2	57.2	63.2	69.2

details, as, for example, our method of defining or determining glucose-oxidizing capacity. But that will not affect the principle involved; namely, that diabetic diets should be individualized with respect to the basal metabolism of the patient and functional efficiency as expressed by the general formula F. E. $= \frac{\text{Capacity}}{\text{Requirements}}$

512 Commonwealth Avenue.

TREATMENT OF EMPYEMA

SOME NOTES EXPLAINING THE LACK OF SUCCESS OF THE CLOSED METHOD

RALPH BOERNE BETTMAN, M.D.
Consulting Surgeon, Chicago Winfield Tuberculosis Sanitarium; Adjunct Attending Surgeon, Michael Reese Hospital; Clinical Assistant in Surgery, Northwestern University Medical School
CHICAGO

During the war it was demonstrated experimentally and clinically that the closed method of treating acute empyema was a simple, expedient and satisfactory method. This fact had been annunciated before, and has been since. The majority of surgeons, however, still adhere to the open method. There must be reasons why, in the face of apparently convincing evidence in its favor, the closed method is not more popular. Some of these reasons I will endeavor to explain. For the most part, the difficulties that have been encountered by many surgeons in performing the closed method might easily have been avoided.

In the last three years we have used the closed method in a large group of cases of empyema, especially in children. We have used a modification, worked out and put into routine form by Dr. Greensfelder, of the army trocar method. The results have been gratifying. The operation is so easily done, the after-course is so much more comfortable than with the open method, and the occurrence of chronic empyema so slight that I have the temerity, in spite of the volumes already written in favor of the closed method, to add this article in the hope that I may be able to demonstrate some of the more common mistakes.

The procedure, in brief, is as follows: After the skin has been cleansed with soap and water and alcohol, the site of insertion of the drainage tube, a No. 14 French soft rubber catheter, is anesthetized with 0.5 per cent. procain. General anesthesia is not only unnecessary but is strongly contraindicated in early

cases. An exploratory puncture is made, and the needle and sypringe are left in situ as a guide. The trocar is then forced through the chest wall into the empyema cavity. After the stilet has been withdrawn, the catheter, clamped at its funnel end, is threaded through the sheath of the trocar. Great care must be taken in the selection of the catheter. It must fit snugly, so snugly that it requires a lubricant, such as sterile olive oil, to assist its passage. This is very important. Unless the catheter fits snugly into the sheath of the trocar it will not fit snugly into the slightly larger wound, and air will soon gain access into the chest cavity. This, of course vitiates the whole procedure. The catheter is held in place by adhesive tape or a rubber cuff, and not by a safety pin stuck through the catheter. If the catheter itself is pierced, it will tear at the site of the pin hole and allow the ingress of air. We repeatedly have seen a pneumothorax as a result of these two apparently insignificant mistakes.

The after-treatment consists of repeated aspiration of the empyema cavity and the injection of surgical solution of chlorinated soda (Dakin's solution). The solution is injected mainly with the view of liquefying the thick pus and fibrin flakes. Unless it is injected with regularity, the content of the empyema cavity becomes so thick that it can no longer be aspirated through the small catheter. We advise aspirating the pus every two hours and then reinjecting into the cavity a quantity of the solution equivalent to about one third of the amount of pus aspirated. This arbitrary rule has proved very satisfactory. Here again error is often made by neglecting the injections. I wish to emphasize the necessity of liquefying the pus and plastic fibrinous exudate. These two hourly aspirations and injections are continued through the course of treatment; in some cases aspiration is performed only three times during the night, although the aspiration and injection can readily be carried out without waking a child.

Another source of trouble lies in the fact that the course of the catheter in the chest cavity is not understood. In order to be sure that the catheter reaches well into the cavity, at the time of its insertion an excess length is usually threaded through the trocar. Contrary to general opinion, the catheter, instead of dropping down into the empyema cavity, usually slides upward along the collapsed lung toward the apex. As the cavity is drained and the lung expands, the catheter soon lies between the two layers of pleura. In this position pus can no longer be aspirated. A roentgenogram will clearly show this condition. It is necessary to withdraw the catheter only a few centimeters to reestablish drainage. We have frequently seen cases in which the closed method had been abandoned and in which a knowledge of this condition would immediately have suggested the obvious remedy.

Encapsulation may take place during the closed method as well as during the open method, although perhaps less frequently. Here again the roentgen ray is of great value in confirming the diagnosis. An encapsulation is not a serious complication. Frequently, spontaneous rupture into the main cavity occurs. If rupture does not take place within a reasonable length of time, a catheter is inserted into the encapsulation.

The treatment is ended and the patient is pronounced cured when all symptoms have subsided, when bacterial counts on the fluid aspirated from the chest show this fluid to be sterile, and when the cavity has been obliterated. The last mentioned is most important. It is unwise to allow the chest wound to close over a cavity, even if this cavity is apparently sterile. Often the cavity will be obliterated; but, in other cases, some small recess of the cavity will still harbor bacteria, which cause reinfection. We verify the complete expansion of the lung by taking a roentgenogram before removing the tube. If a cavity is present, treatment must be continued. In case a thickened pleura casts a shadow which might hide a cavity, we inject a sterile 12 per cent. sodium bromid solution through the catheter. This solution is opaque to the roentgen ray and readily discloses the presence of a cavity.

It is essential that during the convalescence the best of general hygienic care be given the patient. Breathing exercises are insisted on. Woulfe blow bottles are used. Calisthenics are ordered to overcome tendencies toward scoliosis. Fresh air and sunlight are prescribed in as large doses as a Chicago winter will supply.

No reference has been made to cases complicated by bronchial fistulas. The diagnosis can be readily established by the expulsion of air through the catheter during the aspirations, as well as the cough reflex occurring with the injection of Dakin's solution. This type of case requires a special technic, which cannot be taken up within the limits of the present article.

CONCLUSION

The closed method of treatment of empyema requires the same careful supervision and individualization as any so-called routine method in medicine or surgery. There are several errors which are frequently made. These can easily be avoided. There are certain complications incident to the disease which arise; these complications must be met as they arise, and the fact of their existence does not invalidate the closed method.

104 South Michigan Avenue.

ACUTE PANCREATITIS WITH EROSION OF THE SPLENIC ARTERY AND FATAL HEMORRHAGE *

G. L. MOENCH, M.D.
Assistant Medical Examiner
NEW YORK

From Jan. 1, 1918, to Aug. 31, 1923, the office of the chief medical examiner of the city of New York handled 64,322 cases. Among this number there were approximately 28,000 deaths from violence and a little more than 700 following abortions. About 9,500 necropsies were done.[1]

Among all these deaths only twenty-one—including the case reported here—were due to acute pancreatitis. All of the cases, with the exception of one in which the diagnosis was made from the symptoms alone, were corroborated by necropsy. Fourteen showed hemorrhage into the pancreas; nine, fat necrosis, spreading beyond the pancreas in seven cases; two other deaths were associated with moderate retroperitoneal hemorrhage, and one with hemorrhage into the gallbladder, stomach and small intestine. In this instance a three months' pregnancy and status lymphaticus also were found. In one case, 1½ pints of serosanguineous fluid was present in the abdomen, and another necropsy revealed a frank peritonitis.

* Read before the New York Pathological Society, Oct. 10, 1923.

1. This number is only approximately correct, because the final statistics for 1923 have not yet been completed.

Our figures agree remarkably well with those of Draper,[2] who saw acute pancreatitis nineteen times among 4,000 necropsies, in nine or ten of which a pancreatitis was the only assignable cause of death.

As far as the etiology of our cases of pancreatitis is concerned, very little can be said. Not one was due to a traceable violence; in three there was a history of drinking; in four there were gallstones in either the gallbladder or the common duct, and in three, blocking of the pancreatic duct or ampulla of Vater by gallstones. In two other necropsies the pancreas and duodenum were bile stained. Nine of the deaths were in men; twelve, in women. Several of the latter had uterine fibromyomas. The ages varied from 25 to 63 years. Most of the subjects were stout—a point which Aschoff [3] has brought out before.

The symptoms in the individual patients were generally those described as typical: sudden, sharp pain, tenderness and rigidity in the upper abdomen, shock and collapse. The deep cyanosis, also regarded as typical, was not present in most instances, as far as our records show.

REPORT OF CASE

Among the twenty-one cases, the one presented here is unusual in several respects:

A woman, aged 40, thin and very white, admitted to the Brownsville and East New York Hospital, Aug. 18, 1923, with unimportant family and past history, had always menstruated regularly, the last time two weeks before admission. She had had one child, now 13 years old, but for the last five years had been a widow. Up to the morning of the day of admission, the patient had felt well; then, without any apparent cause she was suddenly seized with severe cramps in the lower abdomen, became very weak, and fainted several times. The throat was dry, but there was no vomiting. On admission she was in extreme shock; the extremities were cold and clammy; the pulse was fast and thready; the blood pressure was so low that it could not be recorded. There was no elevation of temperature. The lower part of the abdomen was tender, but not rigid, and an indefinite mass was palpable there. A very slight vaginal bleeding was present. The patient grew steadily worse and seemed to be suffering from internal hemorrhage. A blood count showed 2,400,000 red blood cells and 12,000 leukocytes. Two hours after admission, death occurred.

The clinical diagnosis was in doubt, and varied between a ruptured ovarian cyst with hemorrhage, and an ectopic gestation. A pancreatitis was not thought of, as there were never any signs pointing to the upper part of the abdomen.

At necropsy, eighteen hours after death, there were no external signs of violence. A median incision showed a firmly contracted but otherwise normal heart, a few old apical scars in the lungs, and a moderate old right-sided fibrinous pleurisy. The abdomen was filled with quarts of fluid blood mixed with clots as large as a man's fist. The liver and gallbladder were negative; gallstones were not found. The pancreas showed a necrotic area at its upper border about one-fourth inch in diameter and 1 inch long running from near the head of the organ toward the tail. This necrotic area was grayish brown and slightly bile stained. Toward the left there was an artery almost one-eighth inch in diameter (evidently the splenic, although I first thought it might be the pancreatic) completely eroded through and necrotic. The remainder of the pancreas appeared normal; fat necrosis was not found either at necropsy or by the microscope. The other organs of the abdomen were normal except that on the uterus there was a large, hard, pedunculated, subserous fibromyoma about the size of an adult head. The endometrium gave no indications of menstruation. The cause of death was acute pancreatitis with erosion of the splenic artery and an intra-abdominal fatal hemorrhage.

2. Draper, quoted by Osler: Practice of Medicine.
3. Aschoff, Ludwig: Pathologische Anatomie, Jena, 1913.

COMMENT

This is the only record we have among the total number of more than 64,000 deaths in which the fatality was due to a rupture of the splenic artery. The only case approaching it is one in which death followed the rupture of an aneurysm of the renal artery.

The history of our patient is also unusual in that the typical symptoms were absent and no signs referable to the upper abdomen were present, so that a tentative diagnosis of ectopic gestation was made despite the fact that the patient had been a widow for five years. This diagnosis was further strengthened by the vaginal bleeding which, after the necropsy, may now possibly be explained as a leakage through the tubes, both of which were patent.

In interpreting the necropsy findings I think we must assume that the necrosis of the pancreas caused the erosion of the splenic artery and this, with a rupture of the peritoneum, led to the hemorrhage. What caused the pancreatitis, however, can only be guessed at. Because of the bile stain present on the pancreas it is perhaps not unreasonable to assume that some obstruction to the biliary flow was the original causative factor and that a stone, if present, either was small and overlooked, or had passed before the necropsy was performed.

It is interesting to note in this connection that Ohno [4] found that the mixing of bile with enterokinase increased the proteolytic power of the pancreatic juice a thousandfold.

30 East Fifty-Eighth Street.

PHENOLTETRACHLORPHTHALEIN LIVER FUNCTION TEST

GEORGE HOWARD HOXIE, A.B., M.D.
KANSAS CITY, MO.

The work of Lyons on duodenal drainage, and the work of Piersol and Bockus [1] in testing out the phenoltetrachlorphthalein function test of the liver, have brought to the attention of the practical medical men of the country an alluring promise of possible attainment in the field of diagnosis of diseases of the right upper quadrant of the abdomen. It is generally admitted that disturbances in this region are the most puzzling that we have to deal with. We are tempted, therefore, to try out every new suggestion made along this line. The purpose of this report is, therefore, to present the results of some of these attempts to utilize in actual practice the suggestions thus obtained.

Because Piersol and Bockus, as well as others, have demonstrated that the appearance time of the dye in the duodenal tube is proportional to the total amount of dyestuff excreted in two hours, I tried to use this appearance time as the criterion for my tests. Lately, I have tried to compare the results obtained in this way with those of the Rosenthal method of withdrawing blood from another vein and examining it for the dyestuff.

FINDINGS

The report covers 164 tests on 135 patients. Patients were selected for the tests whose symptoms indicated a

4. Ohno, R.: The Treatment of Acute Necrosis of the Pancreas and the Digestive Potency of the Pancreatic Juice, Mitt. a. d. M. Fac. Univ. Fukuoka 7.

1. Piersol, G. M., and Bockus, M.D.: Observations on the Value of Phenoltetrachlorphthalein in Estimating Liver Function, Arch. Int. Med. 31: 623 (May) 1923.

possibility of trouble in the right upper quadrant and, therefore, includes patients with whom the final diagnosis showed such conditions as pyelitis, cholecystitis, duodenal ulcer and hepatitis.

Correspondence of the Two Tests.—Fifteen patients were used to ascertain, if possible, whether there was a relationship between the time at which the dye disappears from the blood and the time at which it appears in the tube. In twelve of these, positive reports were obtained, the dye appearing in the tube in forty, twelve, twenty, twenty, forty, twenty, eighteen, twelve, fourteen, ten, twenty and eighteen minutes, respectively. For the most part, the time of appearance in the tube seems to correspond to the time of the disappearance from the blood. But in two cases the appearance time was prolonged to forty minutes, and in both these cases the history would indicate that either gallstone colic or some obstruction of the biliary ducts had been present from time to time.

Uniformity of Appearance Time.—The test for the appearance time with the duodenal tube was repeated on individual patients several times. For example, on Patient 13, a woman, aged 40, the dye appeared thus: April 12, in sixty-five minutes; April 16, thirty minutes; April 21, twenty minutes; May 4, twenty-eight minutes; October 9, thirty-five minutes; December 6, sixty minutes; December 12, sixty minutes. This patient had suffered much pain in the right upper quadrant and had undergone one operation for gallbladder drainage two or three years before.

In Patient 14, who had had disturbance in the right upper quadrant for some years, the appearance time was: March 20, fifty minutes; March 29, fifty minutes; April 25, sixty-five minutes; May 5, eighteen minutes. At the time of the last test, the patient was relieved of her pains and, so far as I know, has had no recurrence. I attribute the results in this case to the drainage according to Lyons' method, which had been carried out several times.

In Patient 15, with disturbance in this region, who had had a gallbladder drainage some years before with the removal of about 900 small stones and yet had not obtained permanent relief, the appearance times of the dye were: March 3, thirty minutes; March 8, thirty-one minutes; March 22, fifty-five minutes. Here, again, the gallbladder drainage seemed to give relief.

In Patient 16, the times for the appearance of the dye were: March 29, forty-five minutes; April 4, twenty-seven minutes; June 20, fifteen minutes.

In Patient 17, whose symptoms indicated some type of the hepatitis, the appearance times of the dye were: January 20, seventy-four minutes; March 30, forty minutes; April 18, sixty-five minutes.

In Patient 18, in whose case the repeated gallbladder drainage seemed to have good results, the appearance times were: December 7, thirty-two minutes; December 18, forty-two minutes; February 1, thirteen minutes.

From the foregoing, it is easy to see that one test by the duodenal tube is not sufficient to give conclusive evidence as to the condition of the liver and biliary functions. On the other hand, repeated tests do seem to give figures which indicate the relative efficiency of that apparatus.

Normal Appearance Time.—The shortest appearance time was ten minutes, in a young woman. In other cases, in which there turned out to be no disease of the biliary apparatus, the appearance times were eleven minutes, one; thirteen minutes, four; fourteen minutes, ten, and fifteen minutes, seven. This would indicate that in actual practice one should use the standard set by Aaron rather than that set by Piersol and Bockus as the normal appearance time. In fact, an appearance time of less than twenty minutes ought to be accepted as being within normal limits, since it may possibly be due to errors in technic.

Duodenal Ulcer.—One of the disappointments of the trial of the method appeared when cases of duodenal ulcer gave delayed appearance times, because I had hoped that this method might be used to differentiate duodenal ulcer from cholecystitis. The appearance times in cases of evident duodenal ulcer proved to be: Patient 19, twenty-six, fifty-two; Patient 20, twenty-four; Patient 21, forty-five, twenty-four; Patient 22, twenty-two; Patient 23, forty-eight.

Neuroses.—In neuroses, we found that the appearance time of the dye was usually within normal limits. Consequently, it has helped to rule out purely nervous disorders of the biliary tract.

Lesions of the Right Kidney.—I had hoped that the study of the liver function might give me sufficient light on the subject to enable me to differentiate pains due to perinephritic abscess, cholelithiasis, etc., from those due to cholecystitis and hepatitis. But, unfortunately, in proved cases of pyelitis, hydronephrosis and cholelithiasis, I found that the time of the appearance of the phenoltetrachlorphthalein was also increased. Consequently, I feel that the method used for the appearance time either in the vein or through the tube is inapplicable to this service. This finding checks well with the findings of Major,[2] that the phenolsulphonephthalein test for renal function is much disturbed by hepatic lesions. In other words, the interrelation between liver and kidney is such that a test based on the output of this dyestuff is unreliable so far as it necessitates a differentiation of the troubles of the one from the troubles of the other.

Liver Functions.—This work, of course, brings again to our attention the complexity of the work of the liver. It shows that cases of interstitial hepatitis give different results from cases of cholangeitis; and, again, from cases of cholecystitis and cholelithiasis.

This points out the necessity of ascertaining which functions of the liver are involved in the excretion of phenoltetrachlorphthalein. This work, of course, can be accomplished only in the large experimental laboratories.

CONCLUSION

The test when conducted only for the appearance time with the duodenal tube has proved to be so irregular in its results, as indicated in the foregoing (which are only examples of many other cases), that we are not justified in placing great reliance on it.

1000 Rialto Building.

2. Major, R. H.: The Influence of the Liver on Phenolsulphonephthalein Excretion, J. A. M. A. **81**: 1362 (Oct. 20) 1923.

Manipulation Treatment (?) of Low Back Pain.—I do not doubt the evidence of sudden and sometimes permanent relief from distressing back and leg symptoms from manipulation of the spine with or without an anesthetic. We have all performed these miracles and ought with the exercise of judgment to continue to perform them, but we must find some other explanation than the replacement of a displaced vertebral articulation when the stereoscopic roentgenogram reveals no difference in position in the films taken before the manipulation and those taken after.—R. B. Osgood: *Boston M. & S. J.* **189**:1059 (Dec. 27) 1923.

THE LENS AS SEEN WITH THE GULLSTRAND SLIT LAMP AND CORNEAL MICROSCOPE *

ARTHUR J. BEDELL, M.D.
ALBANY, N. Y.

The Gullstrand slit lamp, combined with the corneal microscope, has made it possible for us to study the lens in more minute detail than ever before. The normal and pathologic changes in capsule and cortex heretofore difficult of examination are now more easily interpreted.

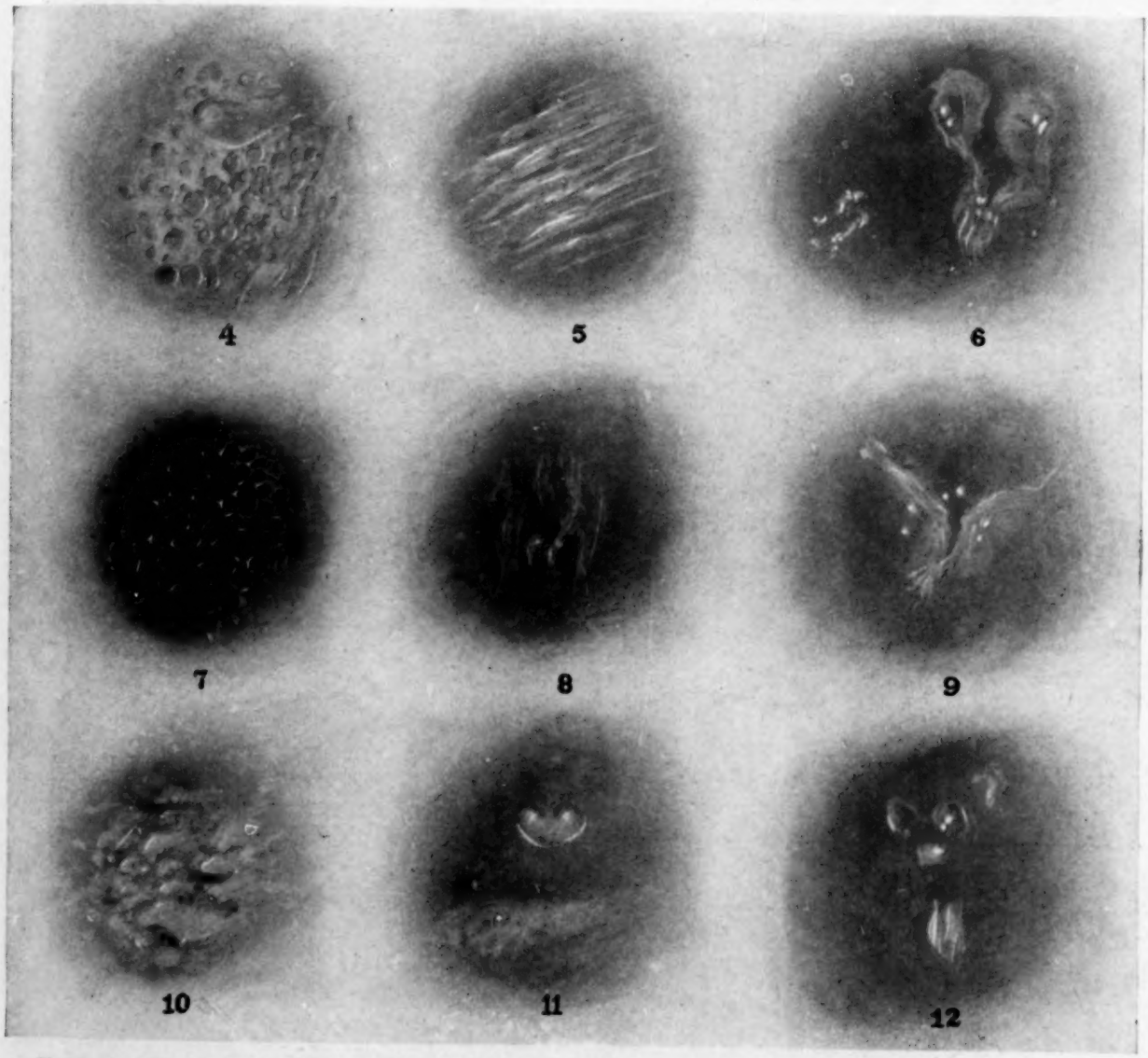


Fig. 1.—4, "oil" globule beneath the anterior capsule in advanced cortical cataract; 5, 8, postoperative, wavy, anterior capsular folds; 7, anterior capsular membrane; 10, swollen gray lens in progressive cataract; 11, vacuole with cortical opacity; 6, 9, 12, variations in the normal "Y" not discerned except by slit lamp. No change in vision.

THE CAPSULE

The anterior capsule consists of irregular quadrate cells which look like a tile mosaic; the surface may be smooth but it is most often rough, giving the impression we get from a cocain dryness of the cornea. At other times, many reflections from its surface recall craters on the moon. On the capsule may be found pigment deposits; star cells, rounded masses or lines. Remnants of the pupillary membrane may show as a distinct grayish-white accretion from which fibers pass to the iris, or as broad, white bands which come from behind the iris and often carry rounded pigment plaques. The capsule may become markedly thickened, showing even on gross examination as a white area behind the pupil. To this, fibers of the pupillary membrane may be attached, or it may be without such bands but with the faintest trace of pigment on its anterior surface.

The posterior capsule cells are the same as those of the anterior, but by transmitted light usually show as an oval with brownish color and rough surface. Opacities in this capsule seem to be most often in a zone to the nasal side of the center; but we have seen them above, below and even to the temporal side of the apex. In size, they vary much, some being mere dots, even with the lamp, while others push the lens cortex forward and measure more than a millimeter. The backward

* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of several illustrations. The complete article appears in the Transactions of the Section and in the author's reprints.

extensions from these opacities may be short or long, single or multiple and with or without branches. These prolongations may be directly united with the vitreous, becoming inseparably associated with its structure.

Inflammatory deposits of iris pigment range from a single, minute area to an almost complete brown sheet. Following inflammation, the capsule itself becomes thickened, and gray in appearance, and not uncommonly the underlying cortex is similarly involved. Clinically, this has been observed; but this method of examination enables us to see more distinctly the detail of the pathologic process. Following an iridectomy or other cessful cataract extractions we often observe these whitish gray folds with clear openings between them. The anterior vitreous may show the same gray lines, which may be misinterpreted as capsule unless due care is taken to differentiate. New blood vessels may extend over the anterior capsule as in old iritis. Both the anterior and the posterior capsule may be vascularized in deep intra-ocular changes, such as glioma of the retina.

THE CORTEX

The most striking feature of the normal lens is the definition of the juncture of the anterior lens fiber

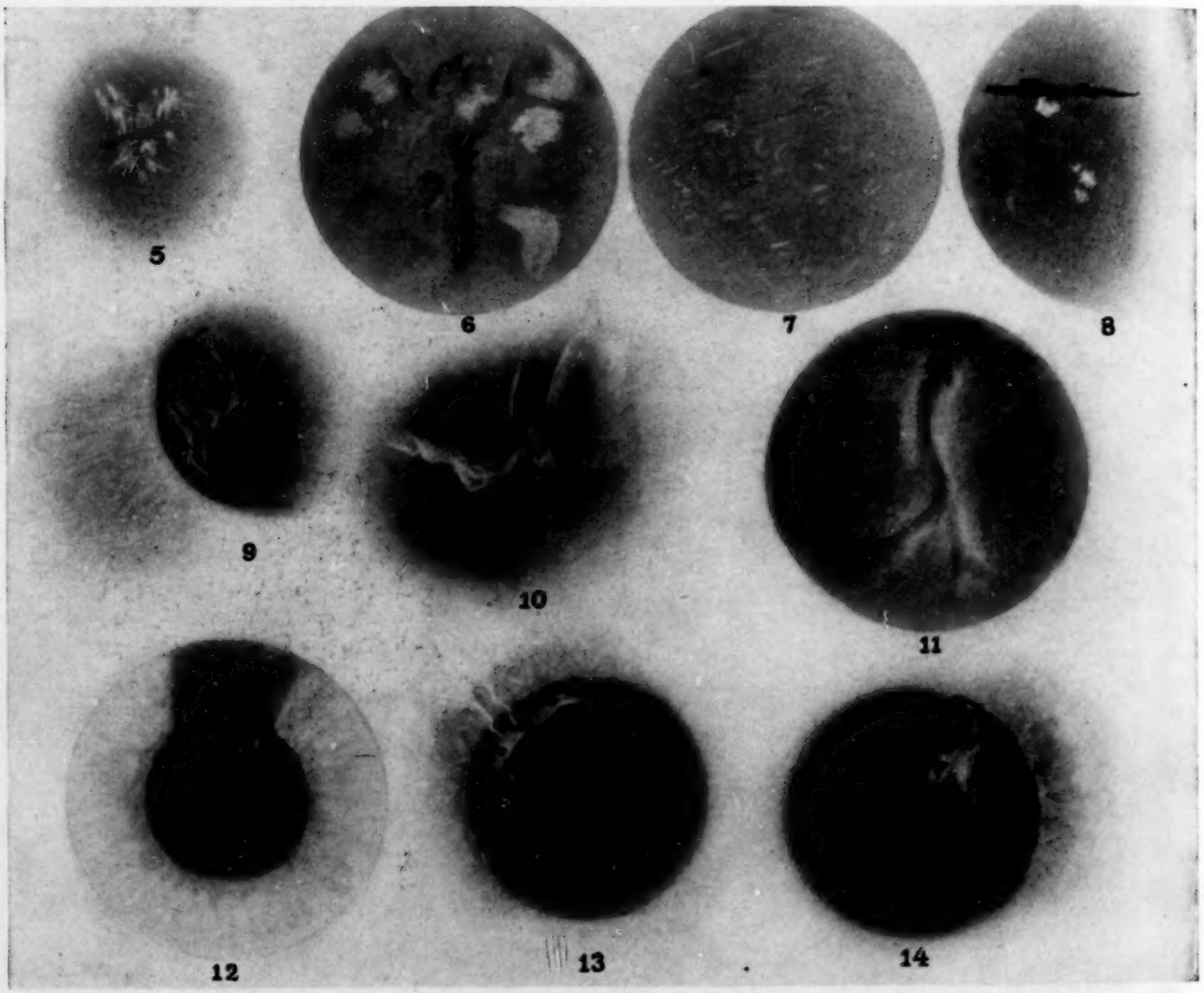


Fig. 2.—5, 11, normal lens "Y"; the interlacing of lens fibers; 6, progressive cortical cataract (Case 1); 7, 8, specks scattered through lens cortex; 9, waving capsular shreds, after operation; 10, furled margins of cut anterior capsule; 12, combined cataract extraction previous to capsulotomy (Case 2); 13, congenital capsular band (Case 3); 14, congenital opacity (Case 4).

tension-reducing operation, the glaucomatous eye often gives the same picture of capsular pigment and subcapsular opacities.

The anterior and posterior capsules are studied after opening by operation or injury more completely than otherwise. Ordinarily the anterior capsule furls back after section, leaving a visible gray sheet. Cortical débris may be entangled, producing disorganized, gray masses, frequently with pigment specks on and in them. The globules and fibers such as seen in mature cataract may be so dominant as to give the appearance of an oily, refracting surface. Even in the most successful segments producing what has been called the "Y." Variations in this are so numerous that it would be impossible for us even to group the types. The illustrations show some of the more common. A few distinct white dots may give the location of this interlacing, or the same kind of white specks may be surrounded by a nebulous, gray haze. There may be a feathery outline with central depression, or the folds at the junction may be so prominent as to give the impression of two fingers in apposition. The same changes are also evident in the posterior cortex except that the "Y" is inverted. In seemingly normal lenses we often find

microscopic white spots. These are seen with the ophthalmoscope as minute black bodies, but frequently they are too small to be so observed. They may be in any part of the lens, especially in the peripheral portions. When viewed in different layers from various angles and with contrasting focus, they probably give the impression that we receive of white rods, corkscrew filaments, wavy lines or even divergent fibers. The detail of these is not evident by any other method of examination.

Occasionally there are refracting bodies evident in the cortex without special regard to position, size or shape. These are called vacuoles, and their interpretation is still subject for discussion.

The earliest stage of advancing cataract formation seems to be the collection of fluid beneath the capsule, which has the physical characteristics of oil globules. There may be a single globule in the entire lens, or there may be so many as to cover the whole surface or even become confluent and appear as a film of oil. Whenever the normal arrangement of lens fibers is disturbed, either by the absorption of water or by some other chemical change, opacity develops. That there must be some other change is clinically suggested by the formation of the branching posterior cortical opacity that follows trauma.

Peripheral opacities are divided into two groups. One with marginal base extends toward the pupil resembling a Gothic spire or stalactite. On close focusing, it reminds one of the cleavage lines through a transparent piece of ice because of its iridescent bluish-gray light and dark zones with indistinct outline, which involves many layers of the cortex. This type of cortical involvement shows very little tendency to progress, and has been known to remain stationary for many years. This is of the greatest clinical importance. No patient should be told that such spicules are cataracts for, strictly speaking, they seldom cause sufficient loss of vision to warrant the mental distress which follows such knowledge.

The other type consists of rounded, structureless, whitish masses, not limited to a single layer, and showing a noticeable tendency to enlarge, a progressive cataract in the true sense. These lardaceous accumulations may project from the entire periphery of the lens in various forms and sizes. Spicules and masses may be coexistent and, in addition, there may be many clear white lens dots scattered between them. Opaque patches may be found in any part of the cortex. These may be isolated and small without interfering with vision, or so large and so deeply placed as to cause partial blindness. These larger lesions usually occupy many layers, with streamers into the adjoining clear cells. The nuclear lens opacities are less definitely outlined than some others.

DISLOCATED LENS

The congenitally dislocated lens is usually clear, certainly so in early life, although associated lamellar cataract is noted. The lens margin, in contrast to the usual illustration, is crenated and does not have the clear, sharp edge heretofore depicted. The supporting zonular fibers are demonstrated as extending to the anterior and the posterior capsule, as well as lens margin itself. Traumatic dislocations, if not complete, show rupture of the zonular fibers. If dislocation is followed by marked inflammatory reaction, the pupillary area may be occluded and filled with brownish-gray exudate, behind which the lens may move.

TRAUMATIC CATARACTS

Traumatic cataracts are of several types. with two main subdivisions: one, in which the anterior capsule is perforated, and the other, in which the cataract seems to follow contusion. An example of the latter is the one that demonstrates the so-called Vossius ring, in which we have a very definite ringlike arrangement of anterior capsular opacities, minute and usually stationary, showing the outline of the pupil in capsular specks. The opening of capsule in the other is followed by absorption of aqueous, causing a grayish swelling of the individual lens fibers with spaces between, probably fluid, and irregularly round collections without structure, the morgagnian bodies, and also the so-called oil globules. As the cortex expands, this gray material bulges forward into the anterior chamber, and breaks

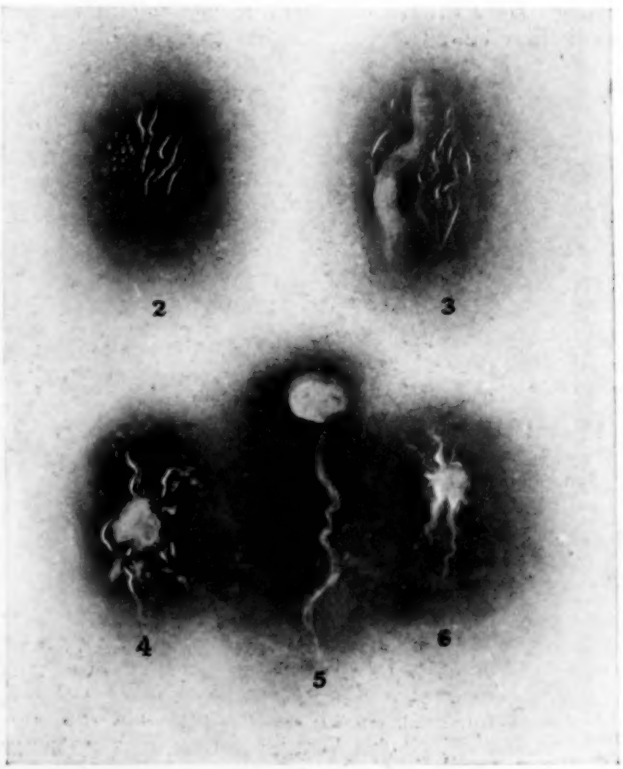


Fig. 3.—2, lens dots: to the left hand side dots in the normal lens, to the right hand side an impression of the wavy lines in seemingly normal lenses; 3, capsular bands: capsular folds filling the pupillary area; vision, full normal; 4, 5, 6, posterior capsular cataract: posterior capsular opacities which ophthalmoscopically show as small black pin points; the tail is a distinct hyaloid remnant.

loose, and it is possible for us actually to see these lens fibers swell. If this distention is not too great and inflammatory reaction not severe, we know clinically that the entire cortex may be absorbed. Often, however, there are inflammatory symptoms with hypertension. At such times we find that there is a considerable change in the iris pigment, and that the gray masses are dotted with it. The anterior capsule may be suspended from above, and on the least motion of the eye wave as a white banner to and fro. A somewhat similar appearance of both anterior and posterior capsule may follow cataract extraction, capsulotomy or a penetrating wound. The posterior capsule may be intact and the whole surface covered with elevated, rounded, glistening, refracting spheres. Capsular shreds covered with fine pigment may be adherent to the vitreous. The vitreous occasionally comes through

the opening. On two occasions we have seen it bulge forward through the original capsulotomy puncture hole. I do not believe that prolapse of vitreous is as common as has been reported.

Old traumatic cataracts show several types of change, one of distinct cortex absorption without the opening of the capsule, the lens becoming sclerosed and in parts even calcified. At other times, with the shrinking and absorption of cortex, the anterior capsule is folded on itself, showing as broad bands without regular arrangement. Then, again, practically all of the cortex is absorbed, and the anterior and posterior capsules are almost in apposition. The anterior surface of this conglomeration is pushed forward into the anterior chamber, projecting as a cone through the pupil.

The opening of the capsule and the retention of a foreign body often cause definite pigmentation. Siderosis may be extreme. A recent case in which a foreign body penetrated the anterior lens capsule and was retained in the eye for a few days before magnet extraction showed several finger-like opacities in the lower nasal cortex. These were so distinctly reddish-brown as even to suggest blood extravasation.

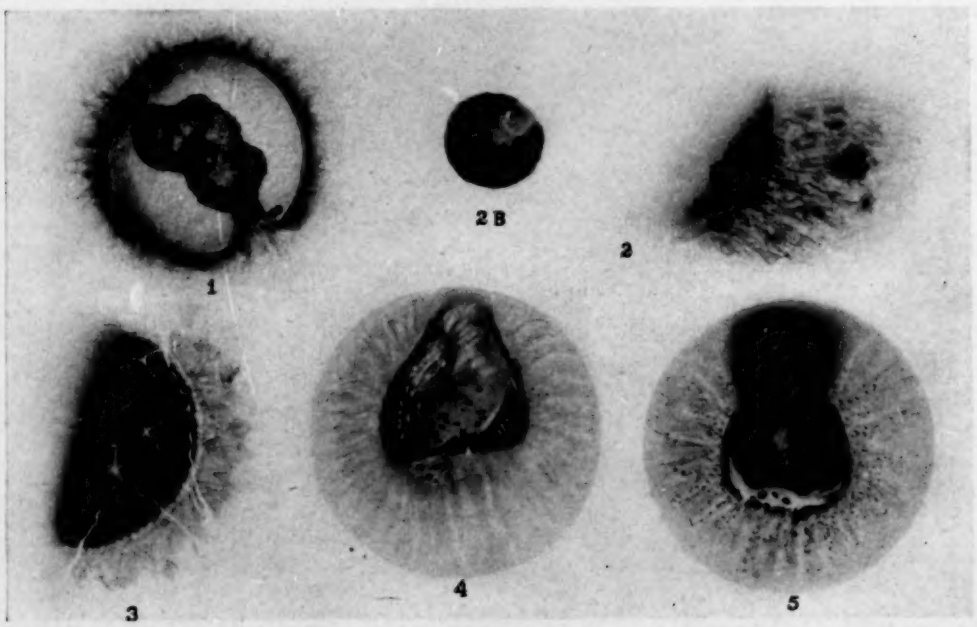


Fig. 4.—1, traumatic cataract; secondary iridocyclitis (Case 8); 2, 2 *B*, dislocated lens; sympathetic inflammation (Case 9); 3, persistent pupillary membrane; capsule opacity (Case 10); 4, complicated cataract (Case 11); 5, chronic glaucoma (Case 12).

LAMELLAR CATARACT

Lamellar cataract usually shows as a zone of opacity; it is accentuated, however, by increased density of some parts of the layer which outlines it. Triangles of gray may occupy both anterior and posterior limiting margins, and may even involve the center of this clouded area. The surface of the opaque region gives two sharp impressions, the one of gross stippling and the other of the very fine, barely perceptible lines. These types are unique.

ILLUSTRATIVE CASES

CASE 1.—*Progressive cortical cataract* (6, Fig. 2). A. E., aged 51, presented lens opacities in many layers, some superficial, others deep, whitish, yellowish and steel blue. Vision with correction was $-2.00\times180°=20/30$.

CASE 2.—*Combined cataract extraction previous to capsulotomy* (12, Fig. 2). Mrs. F. M., aged 49, the gray-white capsule was thickened, with many round, oval and irregular white masses of cortex. Following Ziegler capsulotomy, combined vision was 20/15.

CASE 3.—*Congenital capsular band* (13, Fig. 2). F. D., aged 50, had herpetic keratitis. A white band extended from behind the iris, and was attached by two fibers to the iris shelf: the fibrinated superior end lay free in the aqueous. There were three large pigment plaques on the surface. Several cases like this have been examined, and all seem to be without pathologic significance.

CASE 4.—*Congenital opacity* (14, Fig. 2). Miss A. D., aged 29, had an inverted "Y" of white, structureless fibers on the lens capsule. There were four deep brown pigment ovals on its surface. There was no interference with function.

CASE 5.—*Traumatic cataract* (15, Fig. 2). C. L., aged 9 years, was struck with a shot. The cornea was unopened; the lens was absorbed. The drawing shows a firm, posterior synechia with extensive pigmentation of the gray capsule, which at the place of attachment is very thick and extends as a broad, white band across the pupillary space. From this band extend two distinct white ribbons, which float free in the vitreous. A glassy posterior capsule fills the remaining space between the iris margins.

CASE 6.—*Glaucoma* (16, Fig. 2). B. N., a woman, aged 52, was blind in the eye with glaucoma, complete undermining excavation. Tension 70. Following iridectomy dense posterior synechiae, subcapsular opacity.

CASE 7.—*Combined cataract extraction* (17, Fig. 2). In Mrs. E. W., aged 73, the iris was adherent to the capsule, which was in many free, waving shreds.

CASE 8.—*Traumatic cataract; secondary iridocyclitis* (1, Fig. 4). J. D., a man, aged 21, five years before was struck in the left eye with a fish pole, which broke his glasses. Some glass entered the eye, and since then he had been unable to see. Vision was light perception. The center of the pupillary area was occupied by a dense mass of exudate and pigmentation, which came from the shelf of the iris. This lay on a gray corticocapsular cataract. The pupil contracted freely, the illustration showing it when under atropin.

CASE 9.—*Dislocated lens; sympathetic inflammation* (2, 2 B, Fig. 4). R. L., a man, aged 41, five years before examination was struck in the left eye by a potato. He had little discomfort until within the last few days, when the eye became red and sore and was found to be blind. The lens was dislocated forward, lying on the iris in contact with the cornea. There was a large mass of exudate filling the pupillary area. Vascularization extended from the iris onto the capsule beyond the exudate, as shown at 2.

CASE 10.—*Persistent pupillary membrane; capsule opacity* (3, Fig. 4). A. E., a woman, aged 37, presented capsular accretion with pupillary membrane folds. Vision with correction was 20/15.

CASE 11.—*Complicated cataract* (4, Fig. 4). C. R., a man, aged 70, had a complicated cataract removed by combined linear extraction. There was posterior synechia, free pigmentation of capsule, remains of cortex to the temporal side, and many

floaters in the anterior vitreous, as illustrated by the waves in the upper part of the illustration. With correcting glass, vision was 20/30 and Type 1. It is surprising that the amount of opacity here shown did not interfere with vision.

CASE 12.—*Chronic glaucoma* (5, Fig. 4). E. D., a woman, aged 47, had undergone iridectomy for chronic glaucoma, the superficial pigmentation of the iris being as shown in the illustration. There was a large, gray mass of capsular and

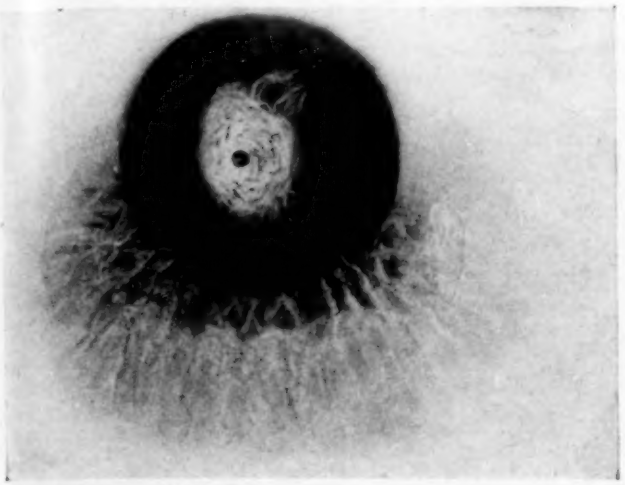


Fig. 5.—Anterior capsule cataract (Case 16).

subcapsular exudate binding the lower pupillary margin to the capsule with free pigment plaques. There were deep cortical opacities in the pupillary area. Vision with correction was 20/30.

CASE 13.—*Traumatic cataract; contusion* (6, Fig. 4). E. H., a man, aged 37, had had a traumatic cataract removed by combined linear extraction. The left hand portion of the pupillary area showed many globules, beneath which the layers of cortex were grayish-white. There were distinct capsular remains; $+7.00 = 50 \times 180°$ give vision of 20/30.

CASE 14.—*Iritis, "quiet"* (7, Fig. 4). A. H., a woman, aged 66, had had a red right eye for the last nine months. She was treated for conjunctivitis. When first seen by me her iris was bound to the capsule except at two points; iris pigmentation was free over the iris stroma and over the capsule of the lens. The capsule was gray and thickened, and the subcapsular cortex opaque. Vision was reduced to 20/70. At no time during the progress of the disease did she have pain.

CASE 15.—*Traumatic cataract; penetrating foreign body* (8, Fig. 4). H. S., aged 46, had a traumatic cataract following the entrance of a magnetic foreign body. The drawing shows the progress of the lens absorption. To the left hand side is a clear oval through which the fundus is distinctly seen. The capsule in the pupillary center is thickened with lines of infiltration. The right hand side shows layers of cortex beneath the capsule. This portion of the lens is thicker, and bulges into the pupillary area. The iris is adherent to the capsule above. There are two types of pigment deposits, the fine specks in the clearest portion of the pupil and the larger X-shaped, dark brown masses to the right hand side.

CASE 16.—*Anterior capsular cataract* (1, Fig. 5). The vision of the right eye in W. T., aged 50, was reduced to ability to count fingers at 3 feet. The illustration is of the right eye, which had always been poor. There was no history of injury or inflammation. The cornea was clear, without evidence of perforation. Examination showed an irregular, projecting, anterior capsular cataract to which many fibers of the retained pupillary membrane extended. The white mass was lamellated, and from its posterior surface streamers extended into the underlying clear cortex. The vision of the left eye, with correcting glass, was 20/20, with no lens opacity. There was no similar case in the family as far as we are able to trace.

CASE 17.—*Anterior capsular cataract* (2, Fig. 5). E. P., a man, aged 51, had always been conscious of a minute, white speck in the right eye. There was no evidence of previous ocular inflammation. Vision with +3.00 was 20/20+. A white, projecting, capsular mass was arranged in lamellae, the apex being the more anterior and showing an almost complete ring of minute iritic pigment dots.

These two cases illustrate capsular formation without perforation of the cornea, so that both must be considered as embryologic in origin.

CASE 18.—*Iridodialysis* (1, 1*b*, Fig. 6). S. S., aged 21, was struck in the left eye by a bullet from a sling shot, with immediate loss of vision. Blood cleared entirely in four days. Vision was $20/40 - 50 = 1.00 \times 15°$ 20/15.

CASE 19.—*Secondary cataract* (2, Fig. 6). Mrs. F. K., aged 69, was operated on for cataract following chorioretinitis. Extraction was uneventful, and healing rapid; but a firm, broad, white-gray, pigmented band extended across the pupil. Above and below, the posterior capsule was easily examined. Following Ziegler capsulotomy, combined vision, despite the choroidal lesions, was 20/40.

CASE 20.—*Phthisis bulbi; secondary cataract* (3, 3*b*, Fig. 6). Mrs. J., aged 70, lost the sight of the right eye years ago, following a severe injury. The globe is now quadrate, with

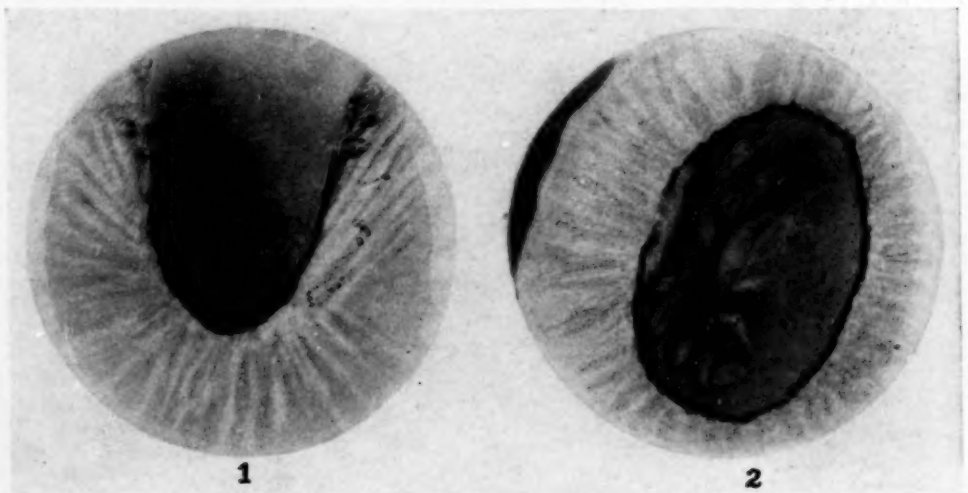


Fig. 8.—1, chronic inflammatory glaucoma (Case 22); 2, iridodialysis; traumatic cataract (Case 23).

minus tension. The iris is attached to the thickened gray-yellow capsule, and the entire lens is opaque.

CASE 21.—*Traumatic cataract* (Fig. 7). A man, aged 36, was not able to see for many years. There was no light perception. The pupil was irregular in outline, with changes in the iris pigmentation. The anterior chamber was deep. To the superior nasal side the cataract was of the flocculent white type, with masses of free pigment on the capsular surface. This illustrates the beautiful arrangement of zonular fibers, which, springing directly from the ciliary processes, can

be traced to the lens capsule. The lower illustration gives the pigmentation of the inferior temporal margin, which suggests attenuated ciliary processes.

CASE 22.—*Chronic inflammatory glaucoma* (1, Fig. 8). Miss M. S., aged 48, had had glaucoma for ten years. Following an iridectomy, the atrophic iris bordered the coloboma with dense pigment triangle above and many smaller similar masses below. The capsule was thick and gray, with gray subcapsular cortex.

CASE 27.—*Lamellar cataract* (Fig. 14). C. C., a boy, aged 9 years, has always had poor sight, making school work so difficult that he has been considered mentally subnormal. There is a bilateral lamellar cataract, with best vision 20/70, Type 3. The left eye, after discission and absorption, has, with correction, 20/20, Type 1. The right, here shown with a 6 mm. pupil, illustrates the marginal opacities, both anterior and posterior; also a central, indistinct layer just beneath the outlining opaque zone. The larger view shows the fine lines over the opacity, and also the tendency to spicules and masses.

1 2 3

Fig. 9.—1, traumatic cataract; exudate; A mass of capsular and subcapsular exudate giving the impression of traumatic cataract; the peripheral projections are cortical changes; 2, congenital lens opacities: Congenital changes, including capsular pigment of two types, the branching cells and rounded masses, the lamellated sphere is capsular with a partial circle of fine pigment dots; the other opacities are cortical; there is no tendency to increase in size; vision, normal; 3, progressive cortical cataract: it is difficult to show three definite layers of cortical involvement; the upper left is subcapsular and the center deep cortical, with a layer between occupied by the small opacity.

CASE 23.—*Iridodialysis; traumatic cataract* (2, Fig. 8). A boy, aged 6 years, was struck by a thrown stick. There was irregular separation of the temporal side of the iris. There was pigment on the thickened capsule; both capsule and anterior cortex were gray.

CASE 24.—*Congenital dislocation of lens* (Fig. 10). D. H., a boy, aged 8, had congenital dislocation of the right lens. Vision was 12/200. There were zonular fibers extending to the anterior and posterior capsule. The uneven lens margin is shown in the illustration. The other lens is similarly dislocated. Six members of the family examined had no lens change.

CASE 25.—*Congenital central cataract* (Fig. 11). A. N., a girl, aged 14, has been observed for ten years. Vision is 3/200. Deep in the central cortex an irregular, rounded, gray-white mass, about 3 mm. in diameter, almost fills the pupillary area. It is made up of superimposed layers of filmy gray like a cyst wall. A backward waving line extends almost to the capsule. The most anterior portion is in several layers.

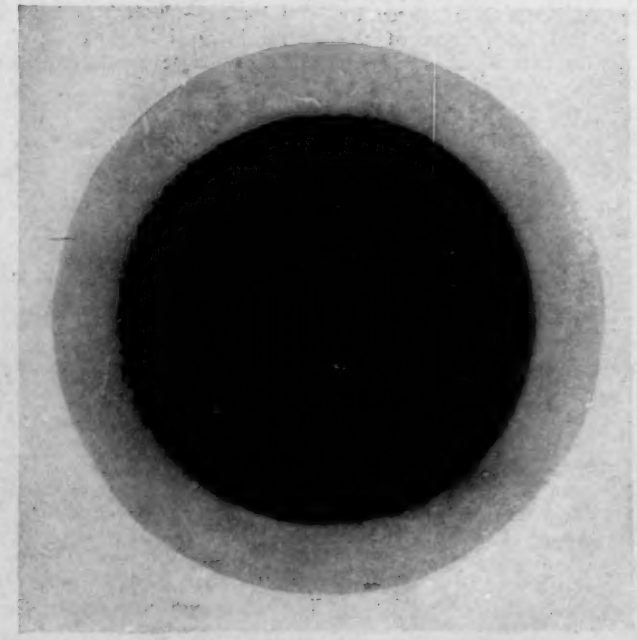


Fig. 10.—Congenital dislocation of lens (Case 24).

CASE 26.—*Traumatic cataract; shrunken capsule* (Fig. 13). Mr. D. G., aged 27, has no recollection of ever seeing with his right eye. The pupil measures 4 mm., is regular, active, anterior chamber of normal depth. The iris and cornea show no evidence of a penetrating wound. The gray lens is sclerosed, and the margin partially absorbed, giving a darker surrounding circle by contrast. The lens capsule is puckered and lies in several gross folds, as shown in the upper sketch. A more magnified sector shows wrinkles of many forms and thicknesses, giving the impression of thin, shiny silk shirred over a discolored pearl. Vision of the left eye, in which there is myopic astigmatism, with correction is 20/15. The lens is clear.

SUMMARY

By carefully considering the facts here presented, it is possible to observe embryologic, physiologic and pathologic lens changes. It is essential that the technic of examination be mastered and that the changes noted be given their proper value.

The visualization of cataract formation is so real that, although heretofore the lens has been the most difficult part of the eye to study pathologically, it is now comparatively easy. To see a cataract develop in a recent detachment of retina proved a most instructive experience, for first there was a faint posterior cortical haze which increased in density and surface involvement, and then the anterior cortex showed many oil globules and fan-shaped opacities. Finally, the entire lens was milky white.

The economic importance of lens opacity is so great that any aid in the elucidation of cause must have an influence of wide range.

The slit lamp makes it possible for us to study lens changes so completely that we may safely say that,

within the next ten years, our therapeutic sphere will be greatly enlarged. I believe that we shall soon know more as to the causative factors of cataract, and that such knowledge may be used to hasten opacity, to hold it in check, or even to absorb part of it.

CONCLUSIONS

This examination gives information regarding the physiology of the lens and pathologic changes unheard of even in the laboratory.

The dots in seemingly normal lenses, and the infinite variety of disease clouds, makes the study of the lens one of engaging interest.

The different constituents of capsule and lens will be better understood; many patients who have been scared by the tyro can have a true interpretation of the lens changes, and many others can have operative relief when it had been withheld.

Finally, it is possible to differentiate traumatic cataract from other lens changes.

344 State Street.

ABSTRACT OF DISCUSSION

DR. LUCIEN HOWE, Buffalo: The manipulation of this instrument is a complicated performance, and when one sees something he does not know what that something is. It is as difficult for the novice to translate the details as for the beginner in roentgen-ray work to translate the negative. This means, simply, that a certain few among us will become specialists among specialists. We are therefore under a double obligation to one who has explored this new field so far and so well.

DR. T. B. HOLLOWAY, Philadelphia: My first experience with the corneal microscope dates back to about 1913, when Dr. de Schweinitz brought an instrument from abroad to the University Hospital. With the illumination then provided, one could but feel that the instrument should have been named the iris microscope instead of the corneal microscope. In order to get a better illumination I utilized a Ziegler photophore, which is provided with a Nernst filament. With the slit lamp illumination, the details are beautiful and, as Dr. Bedell has said, the embryonic, physiologic and pathologic lens changes can be seen; but the fact remains that we are dealing with a wholly new condition, and the real value of the slit lamp and corneal microscope rests in the proper interpretation. Dr. Bedell also states that by its use our therapeutic sphere will be greatly enlarged. This I question very much, especially if we confine it, as he states, to a period of ten years. To my mind, as far as the lens is concerned, the slit lamp and corneal microscope are chiefly academic instruments at the present time, for the average man. In dealing with the lens we must remember that we know absolutely nothing about the metabolism of the individual lens cell, and almost the same thing can be said about the lens as a whole. The ophthalmoscope has contributed much to our study of vascular changes, but it has not cleared up many underlying factors that produce them. Few people today regard cataract formation as a purely local process. I believe that what pertains to the ophthalmoscope will pertain to the slit lamp and corneal microscope.

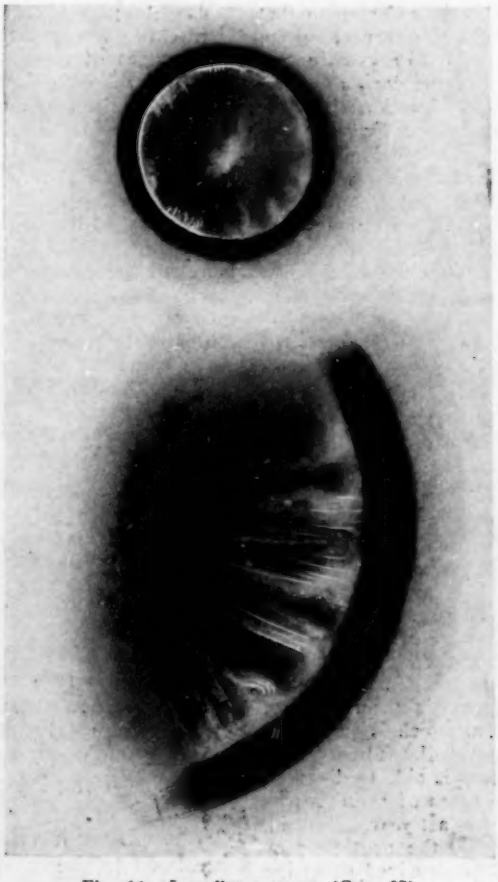


Fig. 14.—Lamellar cataract (Case 27).

DR. MARCUS FEINGOLD, New Orleans: It must be admitted that the corneal microscope and the Gullstrand lamp are for most of us academic instruments; but still we must discourage this note of despair—that it has no therapeutic value. True, we see many interesting details that we cannot interpret and from which we cannot deduce any therapeutic conclusions of value to the patient; but time will bring a change, and even today we see things occasionally with the Gullstrand instrument that are of absolute value to the patient, and this in itself should encourage us to use the instrument. In a case of bilateral iritis, with vision reduced to finger counting in each eye, the pupils were small, with no view of the fundus except by using a drop of cocain. Strong illumination with an Azo lamp and a corneal loupe brought no explanation of the low vision; but with the Gullstrand armamentarium a distinct view could be had of the lens, with an explanation of the low vision. It could be seen that there was no capsule opacity, and that the scleral cortex was clear; but soon an opaque nucleus was seen behind the scleral cortex. I concluded that this low vision was due to the nuclear opacity of the lens with no exudate behind the lens. In order to test my belief an iridectomy was done with gratifying results, and the patient has 5/9 vision. This is a clear application of the use of the instrument. I will mention another application: Those of us who follow the treatment of iritis, cyclitis or uveitis with the Gullstrand armamentarium will see that, weeks after all the ciliary injection has disappeared and the eye is free of discomfort, we can still see these fine particles dancing in the aqueous of the anterior chamber as a sign that the eye has not fully recovered. If this is not a therapeutic use of the instrument, I do not know what other name we could give it.

DR. GEORGE F. KEIPER, Lafayette, Ind.: Dr. Bedell has given us some beautiful pictures of the eye as seen by the stereoscopic microscope with the slit lamp illumination. I have pasted these pictures in a scrap book, which always lies beside my slit lamp and stereoscopic microscope. The pictures are valuable for reference, when we see something with the instrument difficult to interpret. To the present time we have had few in this country who can instruct us in the niceties of the technic to be acquired in the use of the instrument. Hence the pictures are of great value to that end. I know of no more beautiful picture to be seen under this instrument than that of uveitis. Descemitis shows as no other means of magnification can show it. The same is true of the lens conditions described in the paper. We must understand the principle underlying the instrument's use. It is nothing more or less than that of the binocular compound microscope, but by reflected light obliquely placed on the spot we wish to examine. We should also remember that with the stereoscopic microscope alone we can look half way into the globe of the eye. With the contact glass in place we may examine the retina. It is a much more powerful instrument than most people suppose. Recently I attended a demonstration of the instrument in a nearby city, and the operator spoke of having a magnification of forty times with the lenses in the instrument. I directed his attention to the fact that his combination produced forty diameters of magnification (40×), quite a difference; for forty diameters is 1,600 times. Our work with this instrument needs standardizing. Unfortunately not all

of us are as lucky as is Dr. Bedell. We are unable to command the services of so capable an artist who made these pictures. But all should strive thus to put on paper the pictures of the conditions encountered in the use of the stereoscopic microscope. We are told that the technic is rather hard to attain. That is true. But let no one be discouraged in attempting it, even the older confrères. For the encouragement of the latter may I suggest the reading of Longfellow's poem entitled "Morituri Salutamus," in which he recounts the achievements of the aged as encouragement to still further endeavor. Longfellow wrote this poem as an old man celebrating with his class the fiftieth anniversary of graduation from Harvard. Objection is made to the instrument because of its cost. It is expensive, but it is worth all it costs because with it we see what we cannot see with the means of magnification previously at command. The electrocardiograph, which many internists regard as indispensable, costs from four to five times as much.

DR. WILLIAM C. FINNOFF, Denver: It is unfortunate that the name slit lamp has been linked with the corneal microscope; the instrument houses are responsible to a great extent for it. The name slit lamp overshadows the corneal microscope. The lamp is only the source of illumination; it is the corneal microscope that gives the magnification. Few ophthalmologists will use the slit lamp and corneal microscope because of the difficulty of mastering the technic; but with the corneal microscope alone, with some source of illumination such as the Shahan lamp or one of the many others, we can discover lesions that cannot be discovered with ordinary means of examination. When an ophthalmologist does not have a slit lamp, the corneal microscope used with these sources of illumination will prove efficient.

DR. GEORGE S. DERBY, Boston: I do not agree with what Dr. Finnoff has said. For six months or more I have had a slit lamp and corneal microscope in my office, and there is also one in the Massachusetts Eye and Ear Infirmary. I admit that it is extremely difficult to use the high power objectives, but I believe that with practice and time a man can become expert with it. With low power magnification and the slit lamp it is extremely easy to see details that are of great benefit. I would particularly call attention to the small, thin membranes which are left after cataract extraction, and which do cut down the vision a line or two.

DR. HANS BARKAN, San Francisco: There is no doubt that we can see things with the slit lamp that we cannot see with the illumination furnished by the Smith or the Hess lamp, and some other lamps. The reason we can see certain things with the slit lamp is that it shows a fine slit of light, and we get the contrast between the illuminated area, which is small and bright, and the dark contents of the eyeball. There is no doubt that the man who uses the slit lamp is able to diagnose a case more readily. I remember some cases of retinitis pigmentosa which Professor Vogt showed me last year. He said, "These people will lose their vision within the next year or two." I could not see that they would be deprived of vision within a year or two. And then he showed me a lesion in the posterior capsule of the lens which seems to be absolutely the first indication of complicated cataract. These people were in the beginning stage of complicated cataract, which no other method of diagnosis would show. While these things are true, I also believe that the clinical application of the slit lamp in the office is, perhaps, not as essential as Dr. Bedell stated. I believe that clinically we can get all the information we need with diffuse illumination and the corneal microscope. If one ever begins to use the slit lamp, it must be used constantly. If it is used in every case in the office we will get some things we do not get in any other way; but if we use it only in interesting cases, we will not keep in practice and will not realize what we see and what it means.

DR. LLOYD MILLS, Los Angeles: While working with Barraquer, I made an observation that shows something of the different effects which various types of cataract extraction have on the eyes. When much pressure was put on the ball in extraction, as in the Smith and in many difficult extracapsular extractions, there was a hernia of the vitreous through the pupil, often taking the shape of a mushroom. This was never noted in correctly performed vacuum extractions.

DR. EDWARD JACKSON, Denver: A strong enough illumination of any kind without the slit lamp will give us the results. But in examining the transparent, or almost transparent media, the narrow band of light brings out anything present in the media. No one understands all the possibilities of this lamp. The more we look at the eyes thus, the more we shall become familiar with them. The obstacle to the use of the slit lamp is the technic that is required to use the instrument. There is a stage of complex elaboration in every instrument, and after that simplification gives us an instrument for daily use. The slit lamp and corneal microscope are not yet as simplified as they might be. But every one who can give the time and has the persistence will be getting ahead of his fellows in his knowledge of the eye and eye diseases, by the use of the instrument. I use direct sunlight illumination which is brighter than the slit lamp. Nine tenths of therapeutics is exact diagnosis. The slit lamp and corneal microscope give us an instrument of precision, however difficult its use may be.

DR. ARTHUR J. BEDELL, Albany, N. Y.: I feel sure that as Dr. Howe works with the instrument he will appreciate the advantages of more minute study. I did not say that this method of illumination was of therapeutic value. Dr. Holloway evidently misunderstood me. I said, "The slit lamp makes it possible for us to study lens changes so completely that we may safely say that, within the next ten years, our therapeutic sphere will be greatly enlarged." The clinical application and resulting value to the patient has been spoken of by several discussors. All will agree that the more knowledge we have concerning pathologic changes the better we can eventually care for the disease. As an illustration, experimentally it has been possible actually to see an elevation of the lens epithelium and observe changes in cataract development. This has been observed by many of us clinically. In answer to Dr. Mills, I have examined 267 cases after cataract extraction, most of them by the combined operation. Prolapse of the vitreous was found in fourteen. The vitreous offers such a large field that I cannot discuss it now.

INDUCTION OF LABOR

INDICATIONS AND METHODS

SAMUEL J. DRUSKIN, M.D.
NEW YORK

This paper is based on a study of 20,000 cases delivered at the Jewish Maternity Hospital during the eleven years from 1909 to 1920. The series includes 340 cases in which labor was induced or aided by mechanical means. Of the latter, 290 cases have been analyzed in detail.

Though we have taken into consideration, and given due heed to the teachings of obstetricians at home and abroad, we have arrived, from a study of our own cases, at conclusions not always in accord with the practices of other institutions.

DEFINITION

Induction of labor refers to the production of pain and termination of pregnancy beyond the twenty-eighth week of gestation. At this time the fetus becomes viable. The cases that require induction can be divided into two groups. In one group labor is induced for the sake of the child; in the other, pregnancy is terminated for the welfare of the mother. Each of these groups can be still further subdivided.

Induction of labor in the interest of the child is done mainly in cases of relatively contracted pelvis. There are also a certain number of cases in which the pelvis is normal, but the fetus habitually dies before the onset of labor. The latter can be saved by induction of labor before the time the fetus usually dies. Induction of labor for contracted pelvis has in recent years taken

second place to cesarean section. It is asserted by those surgically inclined that cesarean section is a simple operation, and that the results for the child are more certain. They also point out that the death rate of children, not only in the first weeks of life, but during the entire first year of life after induction, is considerable. More recent experiences have shown that the mortality of premature infants can be reduced to a minimum. This is due to improved sanitation and hygiene, to modern methods of caring for infants, and to better and more careful feeding. The teaching against induction of labor for contracted pelvis will therefore have to be revised.

In the interest of the child, induction of labor should be done as near term as possible, never before the thirty-fourth week of pregnancy. Experience and judgment are necessary to determine the proper time for induction of labor. Here the roentgen ray may also be of aid in determining the desirability of induction, as well as the proper time to induce labor. Waiting too long may result in too large a fetus, with marked disproportion between the fetus and the pelvis. It is also necessary to take into account the actual size of the pelvis. Our own practice is never to induce labor in a conjugata vera of less than 8 cm., be it flat or generally contracted; also never to terminate pregnancy before the thirty-sixth week. With such care in the selection of our cases, the results have been most gratifying.

Cases in which labor is induced in the interest of the mother can be thus classified:

1. Diseases that are caused by pregnancy or associated with it. To this group belong eclampsia, other toxemias, pyelitis some types of nephritis, and chorea.

2. Preexisting diseases that are aggravated by pregnancy. To this group belong the circulatory, the respiratory, and some kidney cases.

In the group of cases in which the mother is suffering from an ailment that is independent of pregnancy, but in which the disease is made worse, or her life is threatened by the accompanying pregnancy, gestation should be interrupted as soon as threatening signs of a breakdown are discerned, even before the thirty-fourth week. Waiting is dangerous and may result in loss of the mother as well as the child. On the other hand, in the group of cases in which disease is the result of pregnancy or accompanies this condition, an attempt should be made to treat and clear up the disease and prolong the gestation as near to the thirty-fourth week as practicable. The toxemias, as well as the cases of pyelitis, if put under treatment early, can be cleared up, and pregnancy allowed to go on safely until the thirty-fourth week. In this class we can succeed by careful management to have a healthy mother as well as a living child.

METHODS OF INDUCING LABOR

To induce labor it is necessary to bring about contractions of the uterus. The textbooks speak of various means used to produce uterine contractions or labor pains: (1) drugs and chemicals; (2) thermal agents, such as the injection of hot fluids into the vagina; (3) electrical means, as the galvanic current, and (4) mechanical means.

To induce labor, a method first must be safe, and secondly, it must produce the desired result in a reasonable length of time. Of the four methods mentioned, none but the last has been found to comply with these requirements.

Among the mechanical means recommended are: (1) rupture of the membranes; (2) packing the vagina and cervix with gauze; (3) introduction of a bag (colpeurynter) into the vagina; (4) introduction of one or more catheters or bougies into the uterus, and (5) introduction of a bag (metreurynter) into the uterus.

The first three methods have rarely been used by us because they are unreliable and inefficient. The choice rested between the last two methods, and naturally involved a study of, and a comparison between, the results obtained by the intra-uterine bag and the catheter.

Various theoretical reasons are usually given for the selection of one method or the other. We have analyzed our cases and have arrived at the following conclusions: In eighty-one cases in which the catheter was used, it failed to produce labor pains ten times, or 12.25 per cent. In a series of eighty-four cases in which the bag was used, it failed only twice, or 2⅓ per cent. of the cases, so that the bag proved 5.25 times as reliable as the catheter.

The average onset of pains when the catheter was used was nineteen and one-third hours for the primipara, and twelve and three-fourths hours for the multipara. With the bag the average onset of pains was ten hours for the primipara, and seven and one-fourth hours for the multipara. The average duration of labor with the catheter was twenty-five and three-fourths and twenty-eight and one-fourth hours, respectively; with the bag, fourteen and three-fifths and thirteen and one-fourth hours.

In inducing labor, the bag was found to be more than five times as reliable as the catheter method. Uterine contractions are produced in half the time with the bag method, as compared with the catheter method. The average duration of active labor with the bag method is one-half that of the catheter method. Labor is terminated in a little more than half the time with the bag method. There was one death due to sepsis in the series of 290 cases. This was a case in which the catheter was used. No cases of sepsis were attributable to the bag method. There was no displacement of the fetal parts except when a very large sized bag was used. We have therefore adopted the bag as the best means of induction of labor.

The induction of labor presupposes not only the production of labor pains but also the continuation of these pains until the child is born. Often, however, the pains stop too early, and an additional operation is necessary to terminate labor. Especially is labor less likely to terminate spontaneously when the catheter is used. Since the introduction of pituitary extracts, these terminal operations have been less frequent.

In cases of contracted pelvis after expulsion of the bag, labor should be allowed to terminate spontaneously so far as possible in order to allow molding of the head. Especially is version to be avoided, as premature infants stand the maneuver poorly. On the other hand, in cases of placenta praevia it is best to do a version immediately after the bag is expelled.

The bag is not only a more efficient instrument for the induction of labor, but it has the further advantage over the bougie that it may be used to correct or prevent certain abnormalities arising during labor.

We have used it in cases of, (1) premature rupture of the membranes, (2) transverse presentation, (3) breech presentation, (4) prolapse of the cord, (5) poorly dilatable, rigid cervix, and (6) placenta praevia and premature separation of the normally situated placenta.

In premature rupture of the membranes, the introduction of a bag will prevent a dry labor with its resulting evils. In transverse presentation it will prevent the shoulder from becoming impacted. In breech presentation it will shorten the first stage of labor. In prolapse of the cord it will prevent asphyxia of the fetus from pressure on the cord, and later facilitate version. In a rigid cervix it will help in its dilatation. In placenta praevia and premature separation of the placenta, it will control bleeding while aiding in the dilatation of the cervix. In placenta praevia it suffices, as pointed out by Kosmak, to introduce the bag extra-ovular.

TECHNIC

The patient is prepared in the usual way; the external genitals are scrubbed and washed, the vagina is sponged out, and when there is much secretion, it is washed out with hydrogen peroxid. When the cervical opening is small, the bag is introduced by sight. It is sometimes necessary to dilate the cervix with instruments. When the cervical canal is obliterated and the external os admits one or two fingers, the bag is best introduced by touch. The middle and index fingers are inserted into the vagina and cervix, and the bag is carried along the palmar surface of the hand by means of an instrument and introduced into the cervix. It is best to lubricate the bag with a sterile solution of green soap. The bag is filled with weak compound solution of cresol. During the filling of the bag, the forceps should be opened, but not removed from the cervix; otherwise the bag slips out. The tube of the bag is tied, kinked and retied, the vagina packed with gauze, and the tubing placed into the vagina and surrounded by packing.

We can enhance the action of the bag by administering a small dose of pituitary extract, later repeating the dose if necessary. We have also found that the action of the bag is more certain when a large dose of castor oil (2 ounces, 60 c.c.) is administered several hours previously.

DEPARTURE FROM USUAL PROCEDURE

In cases of hydramnion we have found it more desirable first to rupture the membranes to permit the escape of a fair amount of fluid, and then introduce the bag.

In our most recent experiences we have adopted a method that has all the advantages of the bag method and the catheter method combined and none of their disadvantages. We are now using sterilized urinary bladders of pigs or sheep, filling them with a solution of glycerin.

The advantages are:

1. They are easy of introduction, even through a small opening.
2. They are dilatable, and increase in size the longer they remain in the uterus.
3. They produce osmosis in the surrounding or contiguous parts of the cervix, absorbing fluid from the surrounding tissues.
4. They soften the cervix.
5. Pains set in early and continue effectively.

CONCLUSIONS

1. Induction of labor is a well recognized procedure.
2. Its place in obstetrics is well defined.
3. It is a justified procedure at any stage of pregnancy when the health or life of the mother is endangered.
4. Induction of labor in contracted pelvis should never be attempted before the thirty-sixth week.
5. It compares favorably with cesarean section.
6. The metreurynter or bag is the method of choice.
7. It is a safe and simple procedure.
8. We prefer a bag made of animal membrane filled with a solution either of magnesium sulphate or of glycerin.

107 West One Hundred and Eighteenth Street.

THE PERNICIOUS OR HEMOLYTIC ANEMIA OF PREGNANCY

V. C. ROWLAND, M.D.
CLEVELAND

The pernicious or hemolytic anemia of pregnancy is a special form of severe anemia occurring during the latter months of pregnancy and the puerperium. It closely resembles the ordinary form of pernicious anemia in its hematologic and clinical features, but differs radically in its prognosis. Although the mortality is high in the initial attack, if this is survived, the condition does not recur. Osler, in one of his last publications, stated that these anemias of pregnancy have not had the study they deserve. He reported a group of cases, in which one patient remained in good health for thirty years following the attack. Some patients have even gone through subsequent pregnancies without a recurrence of the anemia.

The condition is insidious in onset and apparently related to the physiologic anemia in the early months of pregnancy. It progresses during the latter months of pregnancy and may be of quite high grade without causing alarming symptoms. Such symptoms as dyspnea, dizziness, nausea and some edema of the feet are readily attributable to the pregnancy. If there is some albuminuria, and especially if it is associated with elevation of blood pressure, which has occurred in a few cases, the condition may be looked on as a pure toxemia of pregnancy without appreciating the serious degree of anemia. Labor is apt to come on prematurely and is characteristically short, relatively painless and with a minimum of bleeding. In a severe case the patient may die in collapse promptly after parturition. Most cases are aggravated, just as toxemia is aggravated, by the stress of labor so that the anemia may be recognized for the first time during the puerperium. The condition may grow progressively worse for a period of six or eight weeks and then prove fatal if the patient is not carried over the crisis by vigorous treatment, especially by transfusions. The child is frequently stillborn, but if living does not share the blood disease of the mother, although subnormal nutrition has frequently been observed.

The literature of the subject is scanty. There were a few reports in the German literature before the war by Naegeli, Schuepbach, Sachs and others. An exhaustive article by Esch,[1] in 1917, reviews the literature in full to that date. He compiled twenty-three cases, some with blood pictures typical of pernicious anemia, others less typical, but with necropsy findings, entirely characteristic. Since the war, Beckman,[2] in Vienna, and Minot[3] and Schmidt,[4] in this country, have added to

1. Esch, P.: Ueber die perniziosaartige (hämolytische) Graviditäts anämie mit typischem und weniger typischem perniziosem Bluthefunde, Ztschr. f. Geburtsh. u. Gynäk. **79**: 1, 1917.
2. Beckman, Max: Zur perniziösen und perniziösartigen Graviditätsanämie, Monatschr. f. Geburtsh. u. Gynäk. **56**: 119 (Dec.) 1921.
3. Minot, G. R.: Two Curable Cases of Anemia, Chronic Hemolytic Anemia, the Pernicious Anemia of Pregnancy, M. Clin. N. Am. **4**: 1733 (May) 1921.
4. Schmidt, H. B.: A Clinical Study of Puerperal Anemia, Surg. Gynec. & Obst. **28**: 596 (Dec.) 1918; Pernicious Anemia of Pregnancy, J. Michigan M. S. **20**: 92 (March) 1921.

the list of cases and to our knowledge of the condition. Schmidt of Detroit has made a special study of the subject. However, further statistical and experimental study is necessary to establish the exact relation of this anemia to the so-called cryptogenetic pernicious anemia. These two conditions were not differentiated in the older literature, and the incidence and mortality percentages for that reason are uncertain. In fact, the original work in pernicious anemia dealt largely with pregnant cases, including Channing's original reports in 1842 and Biermer's in 1872.

REPORT OF CASES

CASE 1.—Mrs. B., aged 33, a tertipara, whose family history was negative, except that the husband and the second child were tuberculous, and whose personal history was also negative, as a college girl had been regarded as of a healthy, athletic type. After marriage there were three pregnancies in rapid succession, the first two apparently uncomplicated. In the third month of the last pregnancy the patient consulted her obstetrician, who reported everything normal. She complained during the later months of weakness and general ill health, but did not return to the obstetrician until one week before delivery. Pallor was then definite, and there was marked general anasarca. The blood pressure was normal and the urine negative. Blood examination showed: hemoglobin, 20 per cent.; red blood cells, 1,900,000; white blood cells, 7,500. There was no marked poikilocytosis or macrocytosis.

The patient was allowed to go to term, and labor came on spontaneously. At delivery there was very little blood lost and no very bad immediate result, but the anemia progressed rapidly and the patient, in spite of late transfusion, died on the twelfth day postpartum. The typical blood picture of pernicious anemia was present a few days before death. The child survived and is still living. If the mother had remained under observation during the latter months of pregnancy, and if the high grade anemia had been recognized, induction of premature labor might have saved her life.

CASE 2.—Mrs. L. A., aged 34, a primipara, whose family history was negative for anemia, tuberculosis or other disease, had had many attacks of tonsillitis, the last with a peritonsillar abscess, in January, 1921. In 1915, there was a gastrointestinal disorder lasting several months, characterized by attacks of epigastric pain, nausea, vomiting and diarrhea. No pallor was noted, and no glossitis. In 1918, left thyroidectomy for simple goiter was performed with good result. There had been eight dead teeth for several years, some showing abscesses in the roentgenogram at the time of the patient's illness. The menstrual history was normal, except that there had always been a tendency to looseness of the bowels at the periods. The general health had been excellent. Aside from the operation, and a few days' absence owing to attacks of tonsillitis, she had not missed a day from her work as stenographer for years, before her marriage in 1921.

The pregnancy proceeded normally for the first six months. There was no initial nausea or other disturbance except some heartburn. In the seventh month (December, 1921), the patient began to complain of headache, evening nausea, shortness of breath and some swelling of the feet. At this time there was no albumin in the urine, and the blood pressure was normal. There was some comment about sallowness and bad color, but no blood examination was made. In the eighth month (Jan. 15, 1922), there appeared some edema of the face and hands. The urine then showed albumin, and the blood pressure was 150. The patient was put to bed and given eliminative treatment for one week, when the edema was much less and the blood pressure 130. Two weeks later, however (January 28), the blood pressure was again 150 or over, and the general appearance of the patient bad. Labor was then induced, the pregnancy being at about eight and one-half months. Twenty-four hours later a normal baby of 6½ pounds (3 kg.) was delivered. There was very slight bleeding at the birth. The patient was promptly relieved of her symptoms of toxemia and was quite comfortable while lying in bed. On the tenth day, the edema having fully cleared up, she attempted to sit up but fell back in a faint. For the next five weeks, she became weaker and paler and had marked palpitation, dyspnea, dizziness and some diarrhea. There was one attack of epistaxis and slight bleeding of the gums on brushing the teeth. Curiously, there was a copious secretion of breast milk, the child increasing in weight to 7½ pounds (3.4 kg.) at eight weeks. At this time the mother entered the hospital as a medical patient.

The general nutrition was good. There was striking pallor of the skin and mucous membranes, but not with the lemon tint of pernicious anemia in any degree. There was some abnormal pigmentation. The chest examination was entirely negative except for a slight enlargement of the heart, and a hemic systolic murmur at the apex. There was a loud venous hum over the jugulars. The liver was 5 cm. below the costal margin. The spleen was at the eighth rib above but not palpable. The neurologic examination was negative except for transient pains and paresthesias. The eye grounds later showed retinal hemorrhage following transfusion. Blood examination, March 24, showed: hemoglobin, 25 per cent.; red blood cells, 600,000; white blood cells, 3,200; color index, 2.4. The differential blood count showed: polymorphonuclears, 56; lymphocytes, 35; large mononuclears, 2; eosinophils, 6; basophils, 1. Macrocytosis and poikilocytosis were marked. Polychromatophilia was moderate. There were a few megalocytes, and no nucleated reds. The urine was negative except for a very faint trace of albumin. The gastric contents showed hydrochloric acid in approximately normal amount on two occasion: April 18, free hydrochloric acid, 25; total acidity, 48; April 29, free hydrochloric acid, 32; total acidity, 53.

The treatment consisted of transfusions by the citrate method, 500 c.c. each on three occasions, March 25, 31 and April 20; sodium cacodylate intravenously; a full diet, especially milk and fruit juices; rest in bed, and weaning of the baby.

At first it was uncertain whether the patient would survive or not. Within twelve hours after the first transfusion the patient complained of marked disturbance of sight. Ophthalmoscopic examination showed curious perivascular retinal hemorrhages, a bright red streak paralleling the vessels for considerable distances. The disturbance of sight was complained of for eight weeks or more. The red blood count gradually increased, being 2,436,000, April 9; 2,896,000, April 21; 3,836,000, April 27, and 4,400,000, May 25, with 90 per cent. hemoglobin and good general condition, which has continued to the present time (September, 1923).

NATURE OF THE ANEMIA

Hofbauer showed that a syncytial hemolysin in the ectodermal cells of the chorion is the source of the hemolysis in early pregnancy, and of the iron synthesis in fetal blood formation. There is more iron in the urine of pregnant women than normal. This iron resorption is less in the second half of pregnancy, owing, according to Hofbauer, to an antihemolysin formed in the maternal blood. Consequently, the physiologic anemia of early pregnancy is overcome and a normal blood count established by the ninth month. If the latter function fails for any reason, there continues an active hemolysis and a progressive anemia during pregnancy. There have also been a few cases of pregnancy hemoglobinuria and hemolytic jaundice, which presumably are related to the anemia. In fact, it may be, and is suggested by the second case reported, that the toxemias of pregnancy are also related or at least associated with the anemia. A hemorrhagic state is sometimes seen in eclampsia.

There is no definite instance on record of the hemolytic anemia of pregnancy recurring after the initial attack has fully cleared up, although such an occurrence might reasonably be expected in a large series of cases, since the ordinary form of pernicious anemia has been known to follow bothriocephalus anemia occasionally, after the removal of the worm. Even repeated small hemorrhages have seemed so to exhaust the blood-

forming organs that a progressive pernicious anemia has resulted. In the older literature, cases of pernicious anemia existing previous to the pregnancy have been confused with those now recognized to be definitely due to the pregnancy. It is quite unfair to classify these cases as simply secondary anemias, because the degree of blood destruction and the blood picture may be typical of primary anemia, and because of the high mortality late in the puerperium. It is more reasonable to try to bring the cryptogenetic forms of pernicious anemia into proper relation with these intermediate forms. In fact, the latter may prove of value in the problem of the etiology of anemias in general.

DIAGNOSIS

Before the high grade anemia is recognized, these cases may suggest the toxemias of pregnancy, postpartum infection, an acute tuberculosis or an acute endocarditis, the latter from the rapid heart action with dilatation and hemic murmurs. Blood examination usually shows the picture of primary anemia except that there may be a leukocytosis if the regeneration of blood is already begun. But the red blood count is frequently as low as 600,000, with poikilocytosis, macrocytosis and nucleated forms. Then the differentiation of the type of anemia must be made. Of course, there are cases of pernicious anemia established months before the beginning of pregnancy. Of cases definitely associated with pregnancy, Osler[5] gives the following classification:

Group 1.—Anemia from small repeated postpartum hemorrhages. This may be of much higher degree than the anemia resulting from one profuse hemorrhage. It may also show the blood picture of pernicious anemia with normoblasts and increased blood platelets and poikilocytosis. In these cases, however, there is usually a low color index, and the history of hemorrhage explains the anemia.

Group 2.—The severe anemia of pregnancy. This is really the hemolytic anemia of pregnancy. Beginning in the early months with mild chloranemia and slight leukocytosis, the normal clearing up by the ninth month does not occur, owing, according to Hofbauer and others, to the failure of the antihemolysin formation. Osler cites a case as an example of this form of anemia in a primpara, who had always been well except for a tendency to anemia. At the sixth month of pregnancy, anemia was recognized. Increasing dyspnea, swelling of the feet and heavy albuminuria developed. The red blood count was 864,000, the white blood count, 13,360; hemoglobin 20 per cent.; color index, 1.12, with anisocytosis, normoblasts and relative lymphocytosis. There was spontaneous labor at seven months, a stillborn child and very scanty bleeding. There was rapid recovery with crises of leukocytosis (45,000 temporarily), and normoblasts (16 per hundred leukocytes) during convalescence. This patient was entirely well two years later.

Group 3.—Postpartum anemia. This, the most common form, begins within a few weeks after delivery, and progresses often to a fatal issue in from eight to twelve weeks. Palmer Howard described these cases as clinically identical with addisonian anemia, but with a larger percentage of recoveries and without recurrences. Osler described five cases, in all of which the patients recovered, one with two subsequent normal pregnancies. In some of the postpartum cases there is undoubtedly an unrecognized anemia in some degree during pregnancy, although Osler refers to the "catabolic metabolism of the postpartum state" as the source of a hemolytic toxin. This additional factor may be necessary in certain cases to bring out the constitutional predisposition to anemia.

Group 4.—The acute anemia of postpartum sepsis. This, of course, is an entirely distinct condition, but is of importance in differential diagnosis. Cabot reported a case that was clinically diagnosed as pernicious anemia, in which necropsy showed a diphtheric endometritis. Comparatively few postpartum infections, however, have so high a grade of anemia. The exceptional case will show a red count under 1,000,000 and a white count of 20,000 or over.

The diagnosis of the hemolytic anemia of pregnancy may be made more easily, and probably much more frequently, if it is recognized as a distinct clinical entity and definitely sought for. Several writers on the subject, after recognizing their first case, have later seen a group of cases in a relatively short period. Esch, for example, saw nine cases in a few years in Marburg alone, while the incidence in the Vienna clinic in 60,000 births was only about 0.1 per cent. Five of these six, however, were seen in the last three years. At present, at least, one cannot be too arbitrary about the blood picture. Minot says that the color index is often less than 1, with only a moderate reduction in the red count. He cites a case with a red count of 3,000,000 and a color index of 0.7, hemoglobin 45 per cent., and white count of 6,000. The blood serum was yellow, and the reticulated red cells, which indicate youth of cells, increased to 16 per cent., in contrast to a normal of about 0.7 per cent.

There is some disagreement about the white blood count. Schmidt, for instance, gives, as a characteristic triad of this anemia, leukocytosis, acholuric jaundice and fever, none of which was present in the cases reported above. Esch, Osler, Minot and Palmer Howard are authority for the statement that the leukopenia and typical blood picture of pernicious anemia are found in these nonrecurring anemias of pregnancy. It is probable that the stage of the disease at which the blood count is made accounts for the conflicting reports. There may be a leukocytosis regularly during the rapid hemogenesis of convalescence as well as early in the so-called physiologic stage of the anemia.

The spinal cord changes of addisonian anemia have not been described in typical form in the hemolytic anemia of pregnancy, although paresthesias and pains are common.

Finally, the gastric achlorhydria is not absolute. However, there are apparently a few authentic cases of pernicious anemia on record in which there is free hydrochloric acid in the stomach contents.

TREATMENT

Early recognition of the condition in pregnancy is the first essential. When a progressive course is demonstrated by actual blood count, pregnancy should be terminated before a high grade of anemia develops. Otherwise a high fetal and maternal mortality is inevitable. As stated, spontaneous premature birth with a dead child is not infrequent. Bed rest and mild arsenical treatment should be carried out during the period of observation. Transfusion may not be entirely safe. Fetal death has at least been ascribed to transfusion. Any case bad enough to require transfusion is bad enough for termination of pregnancy.

5. Osler, William: The Severe Anemias of Pregnancy and the Postpartum State, Brit. M. J. 1:1 (Jan. 4) 1919.

In fact, in one case reported by Esch, there was a definite progressive course of the anemia in spite of transfusion during pregnancy. Minot states that the hemoglobin should not be allowed to drop below 50 per cent.

At the time of delivery, the tendency to collapse should be anticipated and transfusion prepared for. Transfusion should then be repeated until active blood regeneration is apparent by increasing red count with large numbers of nucleated and reticulated red cells and also in some cases by leukocytosis. After the crisis, convalescence is rapid and complete. Then the question of the advisability of future pregnancies arises. The situation is somewhat similar to that after a severe toxemia of pregnancy, except that the latter is more frequent in first pregnancies while the hemolytic anemia is more apt to result after a series of pregnancies especially in rapid succession. In addition, there is the factor of constitutional predisposition to anemia. Certainly, pregnancy is inadvisable at least for a considerable period after a high grade anemia. Since all factors of chronic infection and intoxication may be instrumental in producing the final breakdown of the blood-forming organs, it is rational to remove foci of infection, such as infected teeth and tonsils, in the second case reported, as a safeguard against future trouble. If pregnancy occurs, the blood count should be followed at intervals just as the urine and blood pressure are followed in eclamptic cases. If a progressive anemia recurs in spite of treatment, pregnancy should be terminated early.

SUMMARY

1. The hemolytic anemia of pregnancy closely resembles pernicious anemia; and, although the primary mortality is high, the anemia, once overcome, does not recur.

2. The anemia comes on insidiously, and may become apparent during the latter months of pregnancy or during the puerperium.

3. Labor is apt to come on prematurely and is characteristically short, relatively painless and with a minimum of bleeding. Stillbirths in neglected cases are frequent, and there may be sudden collapse and death of the mother after parturition.

4. Transfusion and arsenical treatment should be carried out vigorously to tide the patient over the critical period.

5. All toxic pregnant patients should be examined for anemia.

6. The condition should be more widely known, especially among obstetricians, so that an early diagnosis may be made and preventive treatment carried out.

7016 Euclid Avenue.

Bovine Tuberculosis in Australia.—The section on pathology and bacteriology of the Australian Medical Congress at the annual meeting in November in Melbourne unanimously adopted the following opinion concerning bovine tuberculosis: "Since bovine tuberculosis constitutes in Victoria approximately one fourth of the tuberculosis in the cases investigated during the first four years of childhood, it is in the opinion of this section an important practical problem of preventive medicine and this section believes that it can be most effectively dealt with by compelling dairymen either (*a*) to clear their herds of tuberculous animals by means of the tuberculin test or (*b*) to pasteurize or have pasteurized to the satisfaction of the sanitary authority all milk for human consumption. This may necessitate a small rise in the price of milk, but this section believes that such a rise would be legitimate in the interests of the children."

EARLY CONVULSIONS IN EPILEPTICS AND IN OTHERS

HUGH T. PATRICK, M.D.
AND
DAVID M. LEVY, M.D.
CHICAGO

For many years, opinion on the significance of early convulsions has been most contradictory. Hammond,[1] in 1881, in opposition to the opinion prevailing at that time, wrote, "They [infantile convulsions] may pass into epilepsy; but if they do not I have never been able to find a single instance in my experience in which epilepsy ensuing in adult life has been preceded by the ordinary infantile convulsions." Walton & Carter,[2] ten years later, discount any relationship between early convulsions and epilepsy. They tried to determine the relative frequency of early convulsions in epileptics and in the normal population, and, from the difference, to deduce the prognosis. They reasoned in this way: The incidence of epilepsy in the general population is about 6 per thousand. The incidence of infantile spasms in normal children is 111 per thousand (one in nine). Since only one in fourteen epileptics has infantile spasms, the two affections occur coincidently once in 2,000 persons ($\frac{6}{14}$ per thousand, or about 1 for each 2,000). Hence, the chances of a child with infantile spasms becoming epileptic (1 in 2,000) are less than if it has no infantile spasms (6 in 1,000). They conclude, "epileptics are at least no more likely to have had infantile convulsions, and conversely, a child suffering from infantile convulsions is no more likely to suffer from epilepsy later in life, after a period of immunity has removed the case from the class of epilepsy beginning in infancy and becoming continuous." Ten years later, these conclusions are flatly controverted by Bullard and Townsend.[3] Following up thirty eclamptic children for a period averaging twelve years, they found that four died before the age of 10, six proved to be feebleminded or epileptic, and of twenty remaining free from convulsions, three were nervous. They also tried to find the incidence of early convulsions in the general population, and questioned parents visiting sick children at the Massachusetts General Hospital. Of their 195 children, nineteen, or 10 per cent., had one or more convulsions, and of these (ages not stated) nine were "nervous" and three, "delicate."

Although the literature is replete with articles on this subject, the papers cited are the only ones with statistics up to the publication of Thiemisch and Birk[4] in 1907. They give data on sixty-four eclamptic nurslings. Of these, ten had signs of spasmophilia and one of syphilis, leaving fifty-three "pure" cases. Of these, convulsions returned in from two to four years in six cases (11 per cent.) In the family history, infantile convulsions were frequent; epilepsy was absent. They found that the time of onset and the severity of the convulsions were of no importance in the prognosis. Of the fifty-three, thirty-three were in school. Of these, one half were retarded. Of the entire group, only one third were free from nervous manifestations. They conclude that, in a small percentage of the cases,

1. Hammond: Diseases of the Nervous System, 1881, p. 702.
2. Walton, G. L., and Carter, C. F.: On the Etiology of Epilepsy, with Special Reference to the Connection Between Epilepsy and Infantile Convulsions, Boston M. & S. J. **125**: 485 (Nov. 5) 1891.
3. Bullard, A. M., and Townsend, C. W.: Convulsions in Children, Boston M. & S. J. **146**: 233 (March 7) 1901.
4. Thiemisch and Birk: Ueber die Entwicklung eklamptische Säuglinge in der späterer Kindheit, Jahrb. f. Kinderh. **65**: 16, 1907.

early convulsions are forerunners of epilepsy, but that "eclamptic" children are notably neuropathic and of neuropathic stock.

Difficulty in solving this prognostic problem is due to a number of variable factors. First, there is the question of frequency of early convulsions in epileptic and in "unselected" groups. The more "typical" the epileptic and the unselected groups, the more valid the data. It has been shown [5] that there is an unusually high rate of infantile spasms among defectives, generally in proportion to the severity of the defect. It is likely then that among feebleminded epileptics there will be a higher incidence of infantile convulsions than among a more "typical" group. Epileptics in institutions, where patients are largely custodial and feebleminded, certainly constitute a very special group.[6] Likewise the replies of parents of dispensary and general ward patients, whether or not epileptic, represent data on a highly selected social group. This selective bias is partly overcome in this paper by limiting the data to private cases of epilepsy and to an "unselected" group, as shown later (in discussing occupational classification of the unselected group), representative of cases seen in private practice but not sufficiently inclusive of unskilled laboring classes to be truly representative of the population at large.

TABLE 1.—*Percentage of Early Convulsions in Epileptics in Relation to Age at Onset of Epilepsy and Age at Time of Our First Examination*

	Age at Onset of Epilepsy					
	0–4 Years	5–9 Years	10–14 Years	15–19 Years	20–29 Years	30–49 Years
To office	9	9	13	10	8	4
0 to 4 years	37	28	28	19	12	6
After first attack	24	32	49	54	65	60
To office	4	3	5	2	3	0
5 to 9 years	33	33	19	18	17	6
After first attack	12	9	27	17	17	9
To office	5	10	2	2	1	1
10 or more years	38	66	13	13	6	12
After first attack	13	24	15	15	16	8
Total	18	28	20	14	12	5
	37	43	22	16	12	6
	49	65	91	86	98	77

The accuracy of data on the frequency of early convulsions in epileptics also depends on a number of variable factors. These include the intelligence of the patient, parent or relative, and the age of the patient at the time of examination. The older the patient when first seen, the less likely is the patient or parent to remember whether early convulsions occurred. This is probably the reason why in our records there is a decreasing incidence of infantile spasms with increase in age at the time of our examination.[7] The more intelligent the parent and the younger the patient, the more likely is a history of infantile convulsions, if they occurred, to be elicited.

The matter of diagnosis of epilepsy, especially in infants, is also one of the variable factors in the study of prognosis. Morse,[8] for example, includes under infantile convulsions a number of cases that would most probably have been diagnosed epilepsy in our series—his Group IV containing cases with repeated petit mal-like attacks. (These showed the poorest prognosis.) Such cases we do not include in the infantile convulsion group. They are included in the list of cases diagnosed epilepsy at 3 years or under: forty-six (9.2 per cent.) of the 500 personal cases analyzed in this paper.[9] Infantile convulsions symptomatic of infantile cerebral palsy, encephalitis, idiocy, hydrocephalus and spasmophilia are entirely different from so-called simple convulsions, and are not considered in this study.[10] All other convulsions of infancy and childhood are included, and later are discussed in some detail.

In this paper we compare all early convulsions occurring in a group of 500 epileptics with those in a group of 752 "unselected" infants and children. The cases of epilepsy are the latest 500 taken seriatim (except as immediately noted) from 1,013 epileptics seen in private practice. To simplify and, we believe, to enhance the value of this analysis, cases of presumably idiopathic epilepsy with complications (except migraine) are not included. Excluded, for example, were cases of epilepsy in which the patients had organic heart disease (nineteen), idiocy or imbecility (twenty-eight), acquired syphilis (twenty-five), arthritis (eleven), otitis media (six), a psychoneurosis (sixty-three), and a psychosis (ten). Symptomatic epilepsy is, of course, not included.

Data on the "unselected" group were secured at "better babies conferences" in three communities in Illinois—a rural farming community, rural mining, and a city.[11] The parents were almost all native and probably representative of the more interested parents in the occupations listed. There is, however, as the lists indicate, a fair assortment of many occupations in three different types of communities. The inducements to enter the baby shows are the free examination and the prize for the "most nearly perfect baby." Children with fever or a rash were not admitted. The children were accompanied by the mother from whom the information was obtained. Though the group is not as "unselected" as a house-to-house canvass might produce, obviously it is a better gage of frequency than would be statements from parents of dispensary or general ward patients, since in the latter groups the bias of both social status and miscellaneous disease would be present.

Records of early convulsions were found in ninety-eight of the 500 cases of idiopathic epilepsy, or 19.6 per cent. On the assumption that, in a number of cases forgotten, early convulsions had occurred, 20 per cent. for this group is too low. Events in infancy often are forgotten or not known, especially among those who come to the office in adult life. Regardless, however, of how remote the event, the year of the first epileptic convulsion nearly always is remembered. This is not true of infantile convulsions. Data on their occurrence are most frequently obtained when the mother is present, as she usually is, when the patient is under 18 years of age. Such data are presented in Table 1, which shows the number and percentage of early convulsions in groups arranged by year of onset of epilepsy and

5. Thiemisch and Birk (Footnote 4). Vogt, H.: Die Epilepsie in Kindesalter, Berlin, S. Karger, 1910, p. 75: 140 idiots, 37 per cent.; 166 defectives in Hilfschulen, 28.5 per cent.

6. Thom, D. A.: On Percentage of Feebleminded in Monson State Hospital, Bull. Massachusetts Dept. Mental Dis., July, 1921.

7. Average duration of epilepsy before admission to Monson State Hospital (report, 1915), thirteen years; average duration before first examination, our group (H. T. P.), six years.

8. Morse, L. J.: Relationship of Convulsions of Infants and Children to Epilepsy, Am. J. Dis. Child. **18**: 73 (Aug.) 1919.

9. Thirteen and five-tenths per cent. in Gowers' series: Gowers, W. R.: Epilepsy and Other Convulsive Disorders, London, 1901.

10. Collin, André, and Revon, Thérèse: Prognostic immediat et lointain des convulsions infantiles, Arch. d. mal. d. enf. **20**: 281 (June) 1917. Marfan, A. B.: Les convulsions dans la prémière enfance, Presse méd. **29**: 633 (Aug.) 1921.

11. We are indebted to Mrs. C. St. Clair Drake of the state department of public health for permission to interview mothers at the better babies conferences.

years elapsing between that time and the consultation. The upper corner in each square contains the number of cases of early convulsions; the lower corner, the number of cases of epilepsy. The middle figure, in boldface type, is the percentage of convulsions expressed in round numbers.

Consider the first column. For the entire group of 49, the age at onset is the same: from 0 to 4 years. The difference is only in the time interval between the age of onset and the age at the time of the first office visit. The frequency of convulsions is high and similar, and presumably not affected by the interval between onset and consultation. This is seen also in the next column,

TABLE 2.—*Frequency of Infantile Convulsions in "Unselected" Groups* *

Type of Community	Number	Infantile Convulsions	
		Number	Per Cent.
Farming, rural	405	21	5.1
Mining, rural	173	6	3.5
City	174	5	2.8
Total	752	32	4.2

* Dr. H. L. Harley of the Illinois Institute for Juvenile Research has kindly obtained for us data on a similar "unselected" group of 612 children. Of these, nineteen (3.1 per cent.) had had early convulsions. Adding these to our original group, we have 1,364 children with fifty-one cases of early convulsions, or 3.7 per cent.

with, indeed, a relatively high figure for the late comers. In these two groups, in which the epilepsy begins early in life, there are elicited frequent histories of early convulsions, regardless of the years elapsing before the office visit.

In the groups following, the general tendency is toward a lowering of frequency values, i. e., of infantile convulsions, with the increased "office age." Since the time of onset is the same, the difference in the frequency values may be attributed to the memory factor. But, as can be seen from the table, a change of values on this basis, accepting as more accurate the frequencies elicited from the group that comes to the office within four years of the first attack, would not make a significant change in the original figure. We may conclude for all the groups that the number of cases of early convulsions elicited is not greatly affected by the lateness of arrival at the office. In relation to age of onset, however, there are significant differences. In the first two groups the frequencies are high, 37 and 43 per cent. (It must be remembered that there is little difference between the date of early convulsions and the first epileptic attack in these two groups, since convulsions are designated as "early" when they occur in the first five years. Early convulsions in year 4, for example, with "true" epilepsy starting at 6, give a time interval typical for the first two groups, which are in that respect similar.) But these frequencies are on the average 2, 2.5, 3 and 6 times as high as in the groups showing later onsets in the order given. This implies that when the interval of time between the early convulsions and the onset of epilepsy is short, both are more likely to be remembered. Otherwise we must conclude that late epilepsy actually differs from early epilepsy by this difference in frequency of infantile convulsions. But that the differences appearing in the table are principally attributable to the memory factor, seems to be reasonable.[12]

The frequency of infantile or early convulsions in the unselected group is 4.2 per cent., about one-fifth that of the epileptic group. The figure 4.2 undoubtedly is somewhat low, because about one third of the entire group of 752 children was under 3 years of age, and we may assume that a few of them would have convulsions in the succeeding two years. However, the frequency in those having passed and those having not yet reached the third birthday at the time of the investigation was 3.7 and 5.3 per cent., respectively.[13] The frequency is larger in the group not having attained the third birthday, though not significantly so, considering the size of the series. We should not expect much difference in view of the fact that most infantile convulsions in the unselected group occur before the fifteenth month. The average age of the entire unselected group, however, is, as noted, much lower than the epileptic group. It contains very few children older than 15 years. The majority were under 6 years. The short time interval between a convulsion and the investigation would be much more favorable to accurate data than in the epileptic group. This factor presumably would more than offset the difference to be added because of the number under 3 years. The number 4.2 for the "unselected" children probably is very nearly correct; the number 20, for the epileptics, undoubtedly too low.

Arranged by type of community (Table 2), we find that the children of each rural community show a greater incidence of infantile convulsions than do those of the city.

Morse [8] writes of a "period of immunity," a varying interval following an early convulsion, after which epilepsy will not occur. Such an assumption seems to be highly unreasonable, especially in the light of our figures. In our series, the time interval between infantile convulsions and epilepsy varies from several months to thirty-five years. In about 25 per cent. of cases, the interval was from ten to nineteen years, and in 15 per cent., from twenty to thirty-five years. As yet, we hazard no definite statement as to the pathogenic relationship of early convulsions to late epilepsy.

The towns and the occupations of the parents of the children studied are shown in Table 3.

TABLE 3.—*Towns and Occupations of Parents of Children Studied* *

Town, and Population in 1920	Miners	Farming	Unskilled Labor	Trades and Mechanics	Clerks	Profession and Business
1. Watseka, 2,817	0	54	6	15	7	18
2. Sparta, 3,340	32	10	1	29	9	19
3. Peoria, 76,112	3	12	2	48	8	27

* The numbers indicate percentage.

From the frequencies indicated, 4 per cent. for the nonepileptic and 20 per cent. for the epileptic group, we may conclude that the presence of an infantile convulsion, per se, as defined in this paper, multiplies the individual's ordinary chance for later epilepsy by at least five. Accepting the ordinary chances for epilepsy as one in 600, the chance of an individual with a history of infantile convulsions is somewhat less than one in 120—an incidence of some significance.

SINGLE AND MULTIPLE CONVULSIONS

Since the group of nonepileptic convulsions is small, only thirty-two cases, only points of marked contrast with the epileptic-infantile convulsion group are valid.

12. On this basis, the frequency of infantile and early convulsions in our group of 500 epileptics might be more nearly 40 than 20 per cent.

13. Of the 752 children, about one half were seen at the baby conferences. The other half were above "baby conference" age (5 years).

Of these, especially striking is the difference in the number of convulsions per case, as shown in Table 4.

There is a preponderating number of a single infantile convulsion in the nonepileptic group (65 per cent. of the total) and of multiple convulsions in the epileptic group (76 per cent. of the total). Moreover, in the nonepileptic group the largest number of convulsions recorded for one case is five. Among the epileptics, at least 29 per cent. (and possibly 58 per cent., Table 4) of the cases had more than five. In the nonepileptic

TABLE 4.—*Number of Convulsions per Case*

	Epileptic Group		Nonepileptic Group	
	Number	Per Cent.	Number	Per Cent.
Total cases of infantile convulsions	98	19.6	32	4.2
One convulsion only	23	23.5	21	65.6
Two convulsions	5	5.1	4	12.5
Three convulsions	11	11.2	4	12.5
Four convulsions	2	2.0	2	6.2
Five convulsions	..	....	1	3.2
Not indicated by number, but more than one; e. g., "many convulsions"	28	28.6	..	....
More than five, indicated by number	29	29.6	..	....
Total	98	100.0	32	100.0

group there is not one record of a series of convulsions following one after the other over a period of days—a not infrequent finding in the epileptic group.

AGE AT TIME OF CONVULSIONS

Of the ninety-eight cases of infantile convulsions in the epileptic group, in seventy-seven the records showed definitely the date of onset by month before the fifth year. These are analyzed in Table 5. Of the remaining twenty-one, eleven were recorded as occurring "in infancy," or otherwise indefinitely, but probably before the second year. Of the remaining ten of the twenty-one not listed in the table, four occurred in the fifth year, two in the sixth, one in the seventh, one in the eleventh year, and two at an indefinite age over one year. Comparing the dates of onset of these seventy-seven convulsions with the thirty-two "nonepileptic" convulsions, we have the figures in Table 5.

Comparing the percentages in different month periods, there is a striking contrast in the two groups. The epileptic group shows a sharp descent, starting with the high frequency of 43 per cent. in the first twelve months, and dropping with some uniformity to 9 per cent. in the fourth year. In the nonepileptic group, the high frequency of 59 per cent. occurs at from 12 to 23 months. The vast majority, 75 per cent., occur at from 6 to 17 months, and most of these cases are found at from 11 to 13 months. The same period, from 6 to 17 months, contains but 37 per cent. of the early convulsions in the epileptic group. In the epileptic series the majority of early convulsions (63 per cent.) occur under 6 months or over 17 months, while, in the nonepileptic, 75 per cent. occur between 6 and 17 months. Above 41 months, there is relative infrequency of convulsions in the epileptic series, but not a single case recorded in the nonepileptic series. Therefore, according to our figures, the chance of an early convulsion being a forerunner of epilepsy is greater if it occurs before 6 or after 17 months than if it falls within those limits.

TYPE OF CONVULSIONS

Under the heading of type of convulsions in the nonepileptic group, questions were asked concerning frothing and bleeding at the mouth, fall, stiffness, jerking and localization of the jerking, fever and the duration of the convulsion. Since the wet diaper is no criterion of involuntaries during a convulsion, questions on that point were omitted. Tongue biting occurred in only two out of the thirty-two cases: one at ten months in the single convulsion of a female infant after eating part of a raw apple; the other, in the first two of four single convulsions attributed to constipation occurring at 9, 10, 12 and 17 months, respectively, in a male infant. The former infant was seen three months after her attack; the latter was seen a few weeks after the fourth attack. In each case the mother also had had infantile convulsions.

Froth without hemorrhage was noted in five cases. Fever was present in thirteen cases, but was accepted as present only when a thermometer had been used. In nine an exact temperature was stated, the range in eight cases being from 101 to 103 F.; 105 was recorded in one case. There appears to have been no relation between the presence of fever and the tongue biting or froth. Only one attack was described as continuing over a long period—three hours. The others were all over in "a few seconds" or "a few minutes." [14]

The most frequent type of attack may be described as a brief generalized tonic convulsion, with little or no clonic movements, with or without fever, and without tongue biting. The question of a fall during the attack is nugatory for infants lying in bed; a fall was otherwise noted in every case. This type of attack covers twenty-three of the thirty-two cases.

For the epileptics, the data under this heading are too incomplete to allow comparison of more than twenty-nine cases. But these present interesting contrasts. While we cannot accept as at all accurate the estimated duration of the convulsion in either group, we must consider wide and what appear to be characteristic differences, especially features noticed in one group and not at all in the other. In the majority of

TABLE 5.—*Date of Onset of All Early Convulsions of Non-Epileptic Group Compared with Seventy-Seven Cases of Convulsions Occurring Before the Fifth Year in the Epileptic Group*

	Nonepileptic Group		Epileptic Group	
Date of Onset	Cases	Per Cent.	Cases	Per Cent.
Under 1 month	2	25.0	9	42.8
From 1 to 5 months	0		5	
From 6 to 11 months	6		19	
From 12 to 17 months	18	59.4	10	27.3
From 18 to 23 months	1		11	
From 24 to 29 months	3	9.4	13	20.8
From 30 to 35 months	0		3	
From 36 to 41 months	2	6.2	7	9.1
From 42 to 47 months	0		0	
Total	32	100.0	77	100.0

these (epileptic) cases (eighteen of the twenty-nine) the single or multiple attacks are recorded as persisting over a period longer than half an hour. The following are notations found regarding the early convulsions of the epileptic group; nothing comparable was elicited in the "unselected" group:

Convulsions limited to one side of the body: four cases; onset 8 months, 15 months, 24 months, 6½ years.

Twitching of one hand for a few minutes, then fall and unconscious from five to ten minutes: one case; onset 24 months.

14. That a lay observer generally overestimates the duration of a convulsion is recognized.

Spasms at 18 months, followed by confusion lasting from four to six hours: one case.

Slow clonic contractions at 5 months, lasting a few hours: one case.

Tonic and clonic convulsions followed by coma of four hours: one case.

A series of convulsive attacks lasting all day or all night: four cases.

Nine of the twenty-nine cases are described as having a tonic phase only.

Convulsions over a long period of time (three hours), or followed by confusion or torpor, or limited to one limb or one side of the body, are noted exclusively in the epileptic series. A duration of more than a half hour is not infrequent in the epileptic series, but very infrequent in the nonepileptic series.

Arranging the assigned causes by order of frequency for the two groups, we have Table 7.

Teething, infectious disease and gastro-intestinal upsets as assigned causes have a high incidence in both groups. However, teething is the most frequent assigned cause in the nonepileptic group, and, with the next two "causal" groups (infection and gastro-intestinal), comprises 80 per cent. of all causes. Infectious disease is highest in the epileptic group, and comprises, with teething and gastro-intestinal, 68 per cent. of all "causes." The most significant point of prognostic contrast in the two groups is in the history of traumatic, miscellaneous and "unassigned causes."

TABLE 6.—*The Assigned Cause*

	Nonepileptic Group									Epileptic Group														
Age in months	0 to 1	1 to 5	6 to 11	12 to 17	18 to 23	24 to 29	30 to 35	36 to 41	Total Cases	0 to 1	1 to 5	6 to 11	12 to 17	18 to 23	24 to 29	30 to 35	36 to 41	42 to 47	48 to 59	60 to 71	72 to 83	84 to 95	Recorded as "Infancy"	Total Cases
Teething	..	..	3	7	1	1	..	..	12	..	..	6	2	2	3	..	..	..	..	..	..	..	2	15
Gastro-intestinal:																								
Constipation	..	..	2	1	..	..	..	..	3	..	..	1	..	..	1	..	..	..	..	..	..	..	..	2
Diarrhea	..	..	..	..	..	..	..	..	0	..	..	..	1	..	1	..	..	..	..	..	..	..	..	2
"Cramps"	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
"Indigestion"	..	..	..	..	..	1	..	1	2	..	..	..	..	1	..	1	..	..	..	..	..	..	..	2
"Intestinal disturbance"	..	..	..	..	..	..	..	..	0	..	..	1	..	..	1	..	..	..	..	..	..	..	..	2
Food:																								
Candy	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Walnuts	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Raw apples	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Raw prunes	..	..	..	..	..	..	..	..	0	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1
Bananas	..	..	..	..	..	..	..	..	0	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Tomatoes	..	..	..	..	..	..	..	..	0	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1
Corn	..	..	..	..	..	..	..	..	0	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1
Infection:																								
Pertussis	1	..	..	1	..	..	..	..	2	..	1	..	..	..	1	..	1	..	..	..	..	..	..	3
Pneumonia	1	..	..	..	..	..	..	..	1	..	..	1	..	..	1	..	1	..	..	..	..	..	..	3
Influenza	..	..	..	2	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Measles	..	..	..	..	..	..	..	..	0	..	..	..	..	..	..	..	1	..	..	..	..	1	..	2
Scarlatina	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	1	1	..	..	2
Chickenpox	..	..	..	..	..	..	..	..	0	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1
Croup	..	..	..	..	..	..	..	..	0	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1
"Fever"	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2
Malaria	..	..	..	..	..	..	..	..	0	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1
Meningitis	..	..	..	..	..	..	..	..	0	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
Trauma:																								
Fall on or blow to head	..	..	..	..	..	..	..	1	1	..	..	1	..	..	..	..	..	..	1	..	..	..	..	2
Forceps and asphyxiation	..	..	..	..	..	..	..	..	0	2	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Forceps, no asphyxiation	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Prolonged labor	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Precipitate birth	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Mastoid operation	..	..	..	..	..	..	..	..	0	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1
Reflex and Miscellaneous:																								
Worms	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	1	..	..	2
Tight foreskin	..	..	..	..	..	..	..	..	0	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1
Vaccination	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Weaning	..	..	..	..	..	..	..	..	0	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1
Nightmare	..	..	..	..	..	..	..	..	0	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1
Fright	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
No cause assigned or recorded	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	41
Total									22	Total														98

THE ASSIGNED CAUSE

In Table 6, the events immediately preceding or concurrent with the convulsion are tabulated for both groups and arranged by age at onset in months. The "assigned" causes are grouped under convenient headings.

The same causes are well represented in both groups except the traumatic and the miscellaneous. It has long been observed that early convulsions caused by trauma carry a worse prognosis than those due to most other causes. The "miscellaneous" causes, tight foreskin, vaccination and weaning, appear only in the epileptic group. Their significance, if any, lies in the marked response to such ordinary stimuli; or, more likely, such "causes" are not causes at all. As has been noted previously, there is relatively a larger number of unassigned causes in the epileptic group.

SEX

Within each group, the sexes show similar distribution by year of onset. In each there is a preponderance of males over females; 66 per cent. in the nonepileptic, 60 per cent. in the epileptic group. In the entire unselected group (752 children) the ratio of males to females is 56 to 44 per cent. In the 500 epileptics, the ratio is 62 to 38.

HEREDITY

Comparing the number of families with instances of epilepsy, we have, for the groups, studied Table 9.

It is worth noting that in the nonepileptic-early convulsion group the three infants with family histories of epilepsy had multiple convulsions (five, four and three), the severest in the series. That three of the five family histories of epilepsy in 342 families fall in the small group of thirty-two is no doubt more than a chance factor. We have now two similarities in the epileptic and "nonepileptic"-early convulsion group—the sex distribution and the family history of epilepsy.

Comparing the instances of early or infantile convulsions presumably not epilepsy within the "unselected" group, we have Table 10.

Those families of the unselected group that yield the thirty-two instances of infantile convulsions differ from the rest by showing a higher frequency both of infantile convulsions and of epilepsy in relatives.

TABLE 7.—*Frequency of Assigned Causes* *

	Nonepileptic Group		Epileptic Group	
	Cases	Per Cent.	Cases	Per Cent.
1. Teething	12	39	15	26
2. Infection	7	22	16	28
3. Gastro-intestinal	6	19	8	14
4. Food	3	10	4	7
5. Traumatic	1	3	8	14
6. Reflex and miscellaneous	2	7	6	11
Total cases with assigned causes	31	100 (97)	57	100 (58)
Total cases, no cause assigned	1	(3)	41	(42)
Total all cases	32	100	98	100

* The figures in parenthesis give the percentage of cases with and without an assigned cause.

PREGNANCIES; BIRTHS; DEATHS IN INFANCY

Table 11 presents a comparison of all groups for birth rates, miscarriages, stillbirths, and deaths in infancy.

Since the mothers of the "unselected" group are younger, comparisons of birth rates are not significant. Compared with the general population, the epileptic group appears to be just as fertile,[15] and compared with the unselected group, to show no significant difference in miscarriages, stillbirths, or deaths in infancy.

FORCEPS DELIVERIES

Inquiries concerning instrumental deliveries were made for a rural community and a city. In the former, three of eighty-seven deliveries were instrumental; in the latter, eighteen of 102. Of the eleven infantile convulsions occurring in these two groups, only one was a forceps delivery, and in this case there was no assumed causal relation. Indeed, in the city group there were five times as many forceps deliveries as in the country group, and relatively fewer convulsions. In only one of the twenty-one forceps deliveries in the "unselected" group was there asphyxia. Of the epileptics, 3.6 per cent. were delivered by forceps and 2.4 per cent. were more or less asphyxiated. Therefore, apparently forceps are not a significant factor in the etiology of epilepsy or infantile convulsions.[16]

TABLE 8.—*Sex Comparison in Both Groups* *

	Age in Months							
	0-11	12-23	24-35	36-47	48-59	60-71	72-83	84-95
Epileptic Group:								
Males	39	27	15	7	2	6	2	2
Females	32	23	21	12	6	3	3	0
Nonepileptic Group:								
Males	19	69	12	0	..	..	..	..
Females	25	63	0	12	..	..	..	..

* The numbers are all in percentages.

SUMMARY

In this paper a comparison is made between all early convulsions occurring in a group of 500 epileptics and a group of 752 "unselected" infants and children.

The epileptics were private patients with idiopathic epilepsy and no other clinical findings. The unselected group consisted of infants and children seen at better baby conferences in one urban and two rural communities in Illinois. Both groups are representative of "private practice," as contrasted with institutional and dispensary groups.

Ninety-eight cases, or about 20 per cent. of early convulsions, were found in the epileptic group; thirty-two cases, or about 4 per cent., in the unselected group.

The frequency of early convulsions in the epilepsy group was in a general way inversely proportional to the age at the time of the first epileptic convulsion. According to our records, early convulsions are three times as frequent when the epilepsy begins in the first decade of life as when it begins in the third decade. Probably this is largely due to factors such as the patient's poor memory, or incompleteness of data due to the mother's absence at the time of history-taking. We believe the figure twenty to be a low estimate.

The presence of early convulsions, especially if repeated, per se multiplies the individual's ordinary chances of epilepsy by at least five—in itself a scarcely insignificant risk.

TABLE 9.—*Number of Families Compared with Instances of Epilepsy*

	Total Families	Families with History of Epilepsy in Immediate Family or Some Relative	
		Number	Per Cent.
500 cases of epilepsy	500	55	11.0
98 cases of epilepsy with early convulsions	98	11	11.2
32 "nonepileptics" with early convulsions	28	3	10.7
Nonepileptic noninfantile convulsion group; total number of children, 370	342	2	0.006

There is a prepondering number of single early convulsions in the nonepileptic group (65 per cent. of the total), and of multiple convulsions in the epileptic group (76 per cent. of the total).

The majority of early convulsions in the nonepileptic group (75 per cent.) occur between 6 and 17 months, and most of these are between 11 and 13 months. In the epileptic group, 63 per cent. of the early convulsions occur under 6 and over 17 months; only 37 per cent. between 6 and 17 months.

As contrasted with the "epileptic" early convulsions, the nonepileptic are typically brief, generalized, and not followed by confusion or prolonged stupor.

TABLE 10.—*Family Incidence of Infantile Convulsions*

	Total Families	Families with History of Infantile Convulsions	
		Number	Per Cent.
Nonepileptic infantile convulsion group	28	7*	25.0
Nonepileptic noninfantile convulsion group	342	12	3.5

* In two of these families there were instances of epilepsy.

The same types of assigned causes occur in the two series, with teething highest in frequency in the nonepileptic group; trauma and "reflex" causes in the epileptic, especially birth trauma. In the latter group there is a contrasting high percentage of "unassigned causes."

15. The normal birth rate is 3.8 (Deansly: Infant Mortality, Publication XXVII, p. 19, Children's Bureau, U. S. Department Labor Bureau).

16. It must be remembered that convulsions symptomatic of infantile cerebral palsy are not included in this study.

Regarding sex distribution and incidence of epilepsy in the family history, there is a definite similarity in the two groups.

Within the unselected series, the group with early convulsions contains relatively seven times as many families with instances of early convulsions in relatives as does the remainder, and a much higher frequency of epilepsy.

The family histories of all the groups studied do not significantly differ in the frequency of miscarriages, stillbirths, deaths in infancy or forceps deliveries.

TABLE 11.—*Birth Rates, Miscarriages, Stillbirths, and Deaths in Infancy*

Groups	Number of Mothers	Number of Living Births	Living Births per 100 Mothers	Number of Miscarriages	Miscarriages per 100 Living Births	Stillbirths	Stillbirths per 100 Living Births	Number of Deaths in Infancy	Deaths in Infancy per 100 Births
Unselected.....	370	740	2.00	17	2.03	24	3.24	23	3.10
Nonepileptic early convulsions.....	28	101	3.60	3	2.97	0	0.00	4	3.96
Epileptic plus early convulsions.....	98	353	3.60	22	6.23	4	1.13	17	4.81
All epileptics....	500	1,745	3.49	40	2.29	28	1.61	68	3.31

CONCLUSIONS

Convulsions in infancy and childhood not epileptic, spasmophilic or symptomatic of a gross brain lesion, are evidence in themselves of the individual's increased chance of later epilepsy.

There is no definite "interval of safety" beyond which epilepsy will not occur.

The more likely forerunners of epilepsy are convulsions (1) occurring before 6 or after 18 months; (2) multiple; (3) severe; (4) localized; (5) assigned to birth trauma, "reflex" causes or to no cause, with (6) a family history of epilepsy or similar convulsions. The more fully these conditions are fulfilled, the more likely is epilepsy to follow. The most significant are unilateral convulsions occurring after the fourth year, and generalized convulsions lasting over half an hour and followed by confusion or torpor for several hours.

Especially benign appear to be "teething spasms" occurring between 11 and 13 months.

A group of epileptics and a group of nonepileptics with early convulsions show a similar incidence of epilepsy in the family history, possibly a similarity in stock.

25 East Washington Street.

Defective Aliens.—There were admitted to the United States at Ellis Island under bond during the last fiscal year 4,724 defective aliens who were excluded under the immigration law. This means that a bond was given, frequently with a false surety, which can never be prosecuted. The records of the federal government show that 95 per cent. of these bonds are violated. . . . During the same year, 2,712 defective aliens were allowed to enter without bond; Ellis Island said they must not come in—they were defective. Of 12,976 other aliens found to belong to the excluded classes by medical officers at Ellis Island, 12,305 were permitted to enter by direct order from Washington—nearly 20,000 in all of the mandatorily excluded classes were permitted to enter the United States during the year.—Dawes, S. L.: Official Minutes, Interstate Conference on Immigration, New York, Oct. 24, 1923.

RESTRICTION OF RATE OF FLOW AND INTERCHANGE IN CAPILLARIES BY VASOCONSTRICTOR DRUGS

I. PREVENTION OF ABSORPTION OF INJURIOUS SUBSTANCES FROM ABRADED SURFACES BY LOCAL PRESSOR DRUG ACTION *

BEVERLY DOUGLAS, M.D.
Medical Fellow in Surgery, National Research Council
CINCINNATI

In this report, the results of quantitative studies are given in support of our theory that by means of local pressor drug action on the superficial vessels of the dermis it is possible, in practice, to prevent the absorption of effective doses of a symptom-producing substance locally applied. The proposal to employ capillary constriction to certain new uses in surgery, as in the treatment of superficial burns, has been stated by me in a former report,[1] together with the application of the results obtained in the field of preventive medicine. Reports of other experimental studies and their clinical application will follow in this series.

Sollmann and Pilcher [2] showed in 1916 that, when applied to *scarified* skin, epinephrin produces an area of blanching and "goose-flesh."

The injection of suprarenal extract along with procain, and similar substances to allay the rapid absorption of the latter, is a widely employed surgical procedure. Braun [3] has made a thorough study of this subject. Apparently, however, his work was done by hypodermic and not by the more superficial methods.

The pressor action of epinephrin and other drugs on blood vessels has long been known, but the exact duration and force of this action on the most superficial vessels apparently has been a matter for speculation. For example, in the quantitative work on epinephrin thus far, the study of its effect on absorption of substances from the surface when applied locally without pressure has been neglected.

METHOD EMPLOYED

Microscopic methods must be granted their definite place in the field of capillary physiology. Nevertheless, physiologic vascular states can almost without fail be better judged by quantitative systemic reactions.

In order to clear up the points in question to our satisfaction, we have developed the following experimental method: In every instance the ear of the animal used is abraded by lateral movement of a sharp safety-razor blade held at right angles to the skin surface. Thus, the latter is denuded of epithelium over a measured area previously outlined with ink. So superficial is this abrasion that no bleeding is occasioned. The surface within the outline is moist and red. The pressor drug is then applied for a measured period of time, is washed off with salt solution, and a symptom-producing substance, such as strychnin, applied in its place. We employ strychnin sulphate in crystalline form moistened with physiologic sodium chlorid solution. This is briskly rubbed in, during a measured period of time, and then thoroughly washed off with moist gauze. The symptoms which the animals manifest are recorded from time to time on a chart.

* From the Department of Surgery, University of Cincinnati College of Medicine.

1. Douglas, Beverly: Restriction of Rate of Flow in the Capillaries, J. A. M. A. **81**: 1937 (Dec. 8) 1923.
2. Sollmann, Torald: Manual of Pharmacology, Philadelphia, W. B. Saunders Company, 1918, p. 329.
3. Braun, H.: Die Lokalanästhesie, Leipzig, 1907, pp. 60-236.

EXPERIMENTAL DATA

In general, four varieties of experiments are described, and for convenience the results have been abstracted in corresponding tables. In the experiments abstracted in Table 1, rabbits and guinea-pigs have been protected from strychnin poisoning by the application of varying concentrations of epinephrin.[4] Results in the first four experiments made it obvious that concentrations of from 1:2,000 to 1:3,000 give absolute protection to the animal. The problem then became one of determining at what point of dilution the epinephrin effect broke down in the face of the strychnin action. It is seen that we found 1:10,000 epinephrin to protect absolutely, while, with increasingly dilute solutions, the strychnin symptoms become gradually more grave, until at 1:25,000, death of the animal indicates practically no epinephrin action. This was the only animal, except the controls, that died. It will be noted that all of the experiments recorded here and in the succeeding tables are suitably controlled. For example, on Rabbits 2, 4 and 7, and on Guinea-Pig 2, salt solution replaces the epinephrin. As far as possible, animals of equivalent weight are utilized.

In the series of experiments abstracted in Table 2, the effect on strychnin absorption has been tested after single applications of various concentrations of epinephrin-procain mixture. Rabbits 21 and 22 were the subjects of our first experiments, Nov. 19, 1920. Their weights were exactly matched, though the exact figures were subsequently misplaced. The procain was added to the epinephrin to find out whether anesthesia would abolish the constriction, or if the synergy between the drugs might be found to extend to the property of vasoconstriction of the epinephrin, as stated by Sollmann.[2] If the synergy extends to this property, any therapy with epinephrin could be made much more economical by adding procain, a cheaper drug. The experiments of Ebbecke[5] show that local anesthesia with procain does not prevent the occurrence of vasomotor skin reactions on stimulation of the skin. Carrier[6] later repeated these experiments with the same results. Krogh's[7] results, using acetic acid on the capillaries of the frog's tongue following procain, also agree with

TABLE 1.—*Experiments with Single Applications of Epinephrin*

Animal No.	Weight, Gm.	Epinephrin, Epinephrin + Procain, or Physiologic Sodium Chlorid Solution: Concentration	Epinephrin, Epinephrin + Procain, or Physiologic Sodium Chlorid Solution: Duration	Interval Between Epinephrin and Strychnin Sulphate	Strychnin Dosage Saturated Solution: Area, Sq. Cm.	Strychnin Dosage Saturated Solution: Duration	Symptoms: Early	Symptoms: Late
Rabbit 1	2,400	E. 1:2,000	2 minutes	10 minutes	1	2 minutes	None	None
Rabbit 2	1,323	S.	2 minutes	20 minutes	1	2 minutes	Convulsion 4 min. 30 sec.	Death
Rabbit 3	2,400	E. 1:3,000	3 minutes	30 seconds	2.25	2 minutes	None	None
Rabbit 4	2,900	S.	3 minutes	30 seconds	2.25	2 minutes	Convulsion 30 sec.	Death 3 min. 30 sec.
Rabbit 5	1,200	E. 1:6,000	3 minutes	3 minutes	1	1½ minutes	None	None
Rabbit 6	1,100	E. 1:10,000	2 minutes	3 minutes	1	1½ minutes	None	None
Rabbit 7	2,200	S.	3 minutes	4 minutes	1	3 minutes	Convulsion 1 min.	Death 2 min.
Rabbit 8	2,400	E. 1:12,000	3 minutes	1 minute	1	3 minutes	Convulsion at 7 sec.	Recovery 12 min.
Rabbit 9	1,150	E. 1:15,000	2 minutes	3 minutes	1	1½ minutes	Slight spasm of legs on walking 5 min.	No further symptoms
Rabbit 10	1,300	E. 1:20,000	2 minutes	6 minutes 20 seconds	1	1½ minutes	Slight convulsion 3 sec., definite 6 min.	Severe convulsion in cage; recovery
Rabbit 11	1,300	E. 1:25,000	2 minutes	3 minutes	1	1½ minutes	Severe convulsion 6 min.	Death 15 min.
Guinea-pig 1	340	E. 1:2,000	2 minutes	3 minutes	0.25	2 minutes	None	None
Guinea-pig 2	430	S.	2 minutes	3 minutes	0.25	2 minutes	Convulsion 3 sec.	Recovery

TABLE 2.—*Experiments with Single Applications of Epinephrin and Procain*

Animal No.	Weight, Gm.	Epinephrin, Epinephrin + Procain, or Physiologic Sodium Chlorid Solution: Concentration	Epinephrin, Epinephrin + Procain, or Physiologic Sodium Chlorid Solution: Duration	Interval Between Epinephrin and Strychnin Sulphate	Strychnin Dosage Saturated Solution: Area, Sq. Cm.	Strychnin Dosage Saturated Solution: Duration	Symptoms: Early	Symptoms: Late
Rabbit 12	2,563	E. 1:2,000 P. 1:200	3 minutes	30 seconds	4	3 minutes	Slight twitching, no convulsion	None
Rabbit 13	2,655	S. Ph.	3 minutes	30 seconds	4	3 minutes	Severe convulsion, 9 min.	Death 12 min.
Rabbit 14	Same as 22	E. 1:6,000 P. 1:100	3 minutes	30 seconds	3 (Wound bleeding slightly)	4 minutes	None	None
Rabbit 15	Same as 21	S. Ph.	3 minutes	30 seconds	3 (Wound bleeding slightly)	4 minutes	Severe convulsion, 4 min., 6 min., 10 min.	Recovery
Rabbit 16	2,550	E. 1:10,000 P. 1:100	3 minutes	1 minute	1	3 minutes	None	None
Rabbit 17	2,770	E. 1:12,000 P. 1:100	3 minutes	1 minute 20 seconds	1	3 minutes	None	None
Rabbit 18	Omitted	E. 1:15,000 P. 1:100	2 minutes	10 minutes 40 seconds	1	5 minutes (Strychnin acetate)	Convulsion 12 min.	Death 12 min. 30 sec.
Rabbit 19	2,000	E. 1:15,000 P. 1:100	3 minutes	1 minute	1	5 minutes (Strychnin acetate)	Convulsion 5 min.	Death 5 min. 15 sec.
Rabbit 20	2,100	S. Ph.	3 minutes	3 minutes	1	5 minutes (Strychnin acetate)	Convulsion 5 min.	Death 11 min. 30 sec.
Rabbit 21	1,300	E. 1:25,000 P. 1:100	2 minutes	10 minutes	1	5 minutes	Slight convulsion, 6 min., severe 11 min.	Death 15 min. 5 sec.
Rabbit 22	1,300	S. Ph.	2 minutes	10 minutes	1	5 minutes	Severe convulsion, 4 min.	Death 12 min.

4. Solution Adrenalin Chloride, Parke, Davis & Co., is used in all experiments.

5. Ebbecke, U.: Die locale vasomotorische Reaktion der Haut und der inneren Organe, Arch. f. d. ges. Physiol. (Pflüger's) **169**: 1-81, 1917.

6. Carrier, Quoted by Krogh: The Anatomy and Physiology of Capillaries, Yale University Press, 1922, p. 178.

7. Krogh, A.: The Anatomy and Physiology of Capillaries, p. 128.

this. From our results we conclude that the anesthetization with procain (which must be assumed under the conditions described) does not inhibit the action of epinephrin in any way. On the contrary, procain exercises a synergy as regards superficial vasoconstriction, though this effect appears to be slight. We shall be interested in studying all of these points further. Rabbit 16 and Rabbit 8 each had similar treatment, except for the use of a slightly more dilute epinephrin on the latter. The weights of the rabbits also approximately correspond. In the case of the former, the epinephrin-procain mixture apparently protected the animal from the effect of double the dose of strychnin used in the case of Rabbit 6. It also furnished more protection than that afforded by a slightly more dilute solution of epinephrin alone in the case of Rabbit 8, which had convulsions but recovered. Epinephrin, 1:12,000, failed to protect the latter rabbit, while the same concentration with procain, 1:100 added, gave absolute protection to Rabbit 17 (Table 2). A slightly greater dilution of epinephrin with procain would not stop the absorption of strychnin acetate, but this seems a somewhat more soluble form of the drug than the sulphate (compare 19 with 9). Likewise, we see from 21 and 11 that epinephrin in a dilution of 1:25,000 does not stop absorption whether procain is used with it or not. Control Animal 22 dies in an approximately equivalent period of time.

For our clinical purposes it is very important to know how long the blocking of the most superficial vessels against absorption may be maintained by continued periodic application of effective concentrations of epinephrin with or without procain. The experiment on Rabbit 27 (Table 4) shows that a single application of 1:2,000 epinephrin is effective for at least thirty-two minutes and thirty seconds. Table 3 gives us a good indication of the answer to this question. Rabbit 23 has epinephrin, 1:2,000, applied at ten-minute intervals for two hours and ten minutes. Strychnin was then applied, and no symptoms developed. Rabbit 24, the control animal, was similarly treated except for the substitution of salt solution for epinephrin, and developed convulsions in the usual time. Rabbits 25 and 26 were treated in an equivalent manner with epinephrin-procain mixture, and similar results were obtained. These experiments indicate to us two conclusions. First: Results in the cases of the control animals prove that the tissues are no less permeable to injurious substances after hours than after minutes. In other words, simple mechanical factors like swelling of tissues over the vessels may be ruled out with safety. Second: The pressor action on the most superficial vessels, which limits absorption, is maintained as long as an effective concentration of the drug is present.

In order further to confirm our conclusions that epinephrin produces a direct physiologic block to absorption through the most peripheral vessels, we performed the experiments abstracted in Table 4, in which nitrites were used to relax the vessels previously constricted by epinephrin. We first employed 5 per cent. sodium nitrite, but found that the nitrous acid liberated apparently corroded the tissues and interfered with results. Two animals, 29 and 30, each had their wounds treated with epinephrin, 1:2,000, for two minutes, and then after ten minutes the latter had amyl nitrite from a freshly broken "pearl" applied for one minute under a cover slip. The latter wound became intensely red, while the former, which was treated with epinephrin alone, remained blanched. Strychnin was then applied to the ears of both for one and one-half minutes. The result was that while the former rabbit had no symptoms, the latter had severe convulsions. The results are easily explained by the well known dilator action of amyl nitrite on the peripheral vessels, which action overcame the epinephrin block and allowed the strychnin to be absorbed freely.

In the chart we summarize in graphic form the results given in Tables 1, 2 and 4.

TABLE 3.—*Experiments with Periodic Applications of Epinephrin*

Animal No.	Weight, Gm.	Epinephrin, Epinephrin + Procain, or Physiologic Sodium Chlorid Solution: Concentration	Epinephrin, Epinephrin + Procain, or Physiologic Sodium Chlorid Solution: Duration	Interval Between Epinephrin and Strychnin Sulphate	Strychnin Dosage Saturated Solution: Area, Sq. Cm.	Strychnin Dosage Saturated Solution: Duration	Symptoms: Early	Symptoms: Late
Rabbit 23.....	1,439	E. 1:2,000	Q. 10 min. for 2 hr. 10 min.	25 seconds	1	2 minutes	None	None
Rabbit 24.....	1,364	S. Ph.	Q. 10 min. for 2 hr. 4 min.	25 seconds	1	2 minutes	Convulsion 4 min. 30 sec. opisthotonos 5 min.	Recovery
Rabbit 25.....	2,570	E. 1:3,000 P. 1:150	Q. 5 min. for 1 hr., 2 min. after 1st S.	25 seconds	1	(1) 2 minutes (2) 3 minutes 45 minutes later	None	None
Rabbit 26.....	2,440	S. Ph.	Q. 5 min. for 1 hr.	25 seconds	1	(1) 2 minutes (2) 3 minutes	Convulsion 13 min., 15 min., 18 min., 20 min.	Recovery

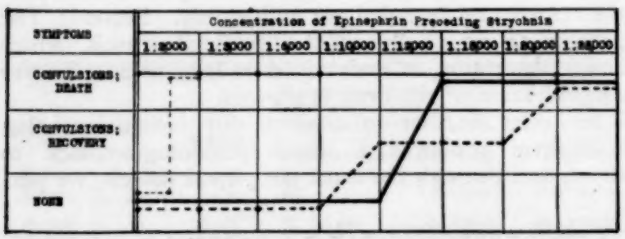
TABLE 4.—*Experiments with Epinephrin Followed by Nitrites*

Animal No.	Weight, Gm.	Epinephrin, Epinephrin + Procain, or Physiologic Sodium Chlorid Solution: Concentration	Epinephrin, Epinephrin + Procain, or Physiologic Sodium Chlorid Solution: Duration	Interval Between Epinephrin and Strychnin Sulphate	Strychnin Dosage Saturated Solution: Area, Sq. Cm.	Strychnin Dosage Saturated Solution: Duration	Symptoms: Early	Symptoms: Late
Rabbit 27.....	1,315	E. 1:2.000	2 minutes	16 minutes	1	2 doses 45 sec. each 15 min. apart	None	None; epinephrin 32 min. 30 sec.
Rabbit 28.....	1,440	E. 1:2,000 $NaNO_2$ after 10 min. for 1 min.	2 minutes	16 minutes	1	2 doses 1 after each $NaNO_2$ (1) 1 min. 30 sec. (2) 45 sec. apart	None except slight twitching	None; wound blue; stasis
Rabbit 29.....	1,135	E. 1:2,000	2 minutes	15 minutes 45 seconds	1	1½ min.	None	None; wound pale
Rabbit 30.....	1,310	E. 1:2,000 amyl nitrite after 10 min. for 1 min.	2 minutes	15 minutes 35 seconds	1	1½ min.	Convulsion 2 min. 35 sec.; severe convulsion 9 min.	Several convulsions; recovery; wound red

SUMMARY AND CONCLUSIONS

1. When the method described for testing the action of pressor drugs on superficial vessels was employed, epinephrin chlorid, when administered locally in proper concentration on the ear of the rabbit and guinea-pig, is shown to produce a peripheral vascular block so complete as to prevent absorption of a toxic dose of strychnin sulphate in saturated solution.

2. In similarly prepared control animals, enough strychnin was absorbed in identical periods of time to



Results: solid light line, controls: physiologic sodium chlorid solution; broken light line, epinephrin followed by amyl nitrite; solid heavy line, epinephrin and procain; broken heavy line, epinephrin alone.

produce convulsions in every animal and death in a majority. The effect of mechanical stimulation is thus ruled out.

3. Concentrations of epinephrin chlorid up to 1:10,000 are efficacious in the foregoing experiments. Weaker solutions are not.

4. A single application of the vasoconstricting drug for three minutes is shown to prevent absorption of strychnin for thirty-two minutes.

5. After intermittent applications of epinephrin for two hours and ten minutes, it is still active in preventing the absorption of strychnin. The vasoconstriction is therefore not relaxed in the period of time during which an effective concentration of epinephrin is present. Swelling of tissues and decreased permeability from mechanical causes cannot account for these results, as each control animal developed symptoms when physiologic sodium chlorid solution was substituted for epinephrin.

6. Procain exerts a synergy with epinephrin in preventing absorption, though in the concentrations used its effect is slight.

7. Amyl nitrite relaxes epinephrin constriction and allows strychnin to be absorbed subsequently.

Accidents in Oil Fields.—The Bureau of Mines made a study of accidents which occurred during 1921 and 1922 to employees in ten California oil companies. In a total of 4,108 accidents reviewed, 14.17 per cent. were caused by machinery at drilling and producing wells, and 39.34 per cent. were sustained by drilling crews. The total number of working days lost on account of accidents to employees was 274,829. Oilers and pumpers were second in number of working days lost, although roustabouts and laborers were second in the number of accidents. An average of little more than 3 per cent. of days worked by employees of nine companies were lost on account of injuries. Assuming seven dollars a day as an average wage for oil workers, this represents nearly $1,000,000 a year lost to the oil industry. The largest number of injuries were sustained by the hands and fingers of employees, and injuries to the trunk caused the greatest loss of time. The average number of days lost per accident for all causes was 65.8. The average number of days lost for falling accidents—from derricks and derrick ladders—was 117.1; from burns 97.4, and from accidents due to machinery at drilling and producing wells 138.8. There were eighteen fatal accidents during 1921, and nineteen during 1922.

POSTOPERATIVE PNEUMONIA

SECOND COMMUNICATION *

HERMAN ELWYN, M.D.
NEW YORK

In a previous publication, I [1] reported the results of studies in cases of postoperative pneumonia covering a period of eighteen months. These studies were undertaken to determine (1) the incidence of pneumonia following operations under general anesthesia, and (2) the etiologic factors concerned in its production. The conclusions reached were as follows: 1. Postoperative pneumonia occurs as a relatively frequent complication following operations on the gastrointestinal tract, the gallbladder and bile ducts, the appendix, and also following operation for hernias and exploratory laparotomies. It is of less frequent occurrence in operations on other parts of the body, the figures being less than 1 per cent. 2. The etiologic factors concerned are, the presence of infection in the respiratory tract at the time of the operation, hypostatic congestion in old and weakened persons, and irritation of the respiratory tract by a too liberal use of the anesthetic. 3. Aside from the occasional production of pneumonia by the aspiration of the contents of the mouth and pharynx, the mode of production in the greater number of cases is, most likely, as follows: After the operation there occurs an area of atelectasis or collapse in some part of the lungs, most often in the lower lobes. When a bronchitis has been present at the time of the operation, or has been produced by the anesthetic, the infection spreads to the atelectatic or collapsed area of the lung, which forms a locus minoris resistentiae.

The investigation was continued for another year. In the second series of cases it was decided to determine also the incidence of pneumonia following operations performed under local anesthesia. The administration

TABLE 1.—*Incidence of Pneumonia Following Operations Under General Anesthesia, and the Organs or Regions of the Body Involved*

	No. of Operations	No. of Cases of Pneumonia	Incidence, Per Cent.
Hernia	200	9	4.5
Appendix	309	10	3.2
Gallbladder and ducts	114	10	8.7
Stomach	63	9	14.2
Exploratory laparotomy	55	4	7.2
Small intestine	15	1	6.6
Colon and rectum	35	2	5.7
Bladder	23	1	4.3
Kidney	72	1	1.3
Spleen	7	2	28.5
Gynecologic operations	358	2	0.55
Extremities	132	1	0.75

of the general anesthetic was placed in the hands of trained anesthetists, who also supervised the occasional anesthetic given by a member of the house staff.

The percentage figures of pneumonia following operations under local anesthesia and those following general anesthesia are, strictly speaking, not comparable. In the first place, the greater number of operations under local anesthesia were minor ones, and included a large number of tonsillectomies. Secondly, in the case of abdominal operations performed under local anesthesia, there was usually some specific reason

* From the Wards of the Mount Sinai Hospital.

1. Elwyn, Herman: Postoperative Pneumonia, J. A. M. A. 79: 2154 (Dec. 23) 1922.

for not giving a general anesthetic; e. g., either the patient had some respiratory affection, or he was weakened and his resistance lowered by the disease from which he was suffering.

The material for this study includes the cases from the adult surgical wards of Mount Sinai Hospital. Operations on the lung itself are excluded.

STATISTICS

From Sept. 1, 1922, until Sept. 1, 1923, a general anesthetic was administered to 1,734 patients. The anesthetics employed were ether, nitrous oxid and ether, or nitrous oxid and oxygen. Of these patients, fifty-two developed pneumonia, an incidence of 3 per cent. Of 399 patients on whom some form of operation was performed under local anesthesia, eleven developed postoperative pneumonia, an incidence of 2.7 per cent.

In the accompanying tables are included all the important statistical data concerning the cases of postoperative pneumonia.

The following complications were noted: serofibrinous pleural effusion, three times; abscess of the lung, three times, and massive collapse of the lung, twice. All these complications occurred in cases of pneumonia following general anesthesia.

TABLE 2.—*Incidence of Pneumonia Following Operations Under Local Anesthesia, and the Organs or Regions of the Body Involved*

	No. of Operations	No. of Cases of Pneumonia	Incidence, Per Cent.
Hernia	37	3	8.1
Appendix	4	1	....
Stomach	13	2	15.3
Small Intestine	6	2	....
Colon and rectum	3	1	....
Bladder	25	2	8.0

Among the sixty-three cases of pneumonia there were nine deaths that were due, wholly or in part, to pneumonia, a mortality of 14.28 per cent.

COMMENT

An analysis of the data presented above brings out some very important points regarding the occurrence of postoperative pneumonia. Examination of Table 1 shows that operations on the spleen have the highest incidence of postoperative pneumonia, but the number of cases is really too small for comparison. The next highest figure is in operations on the stomach, 14.2 per cent. This corresponds with the incidence of 13.8 per cent. in our previous report. Again, as in our previous studies, it is mainly intra-abdominal operations that are followed most often by pneumonia; and of these, especially, operations on the gastro-intestinal tract, appendix, hernia, gallbladder, and exploratory laparotomies are apt to be followed by pneumonia. Operations on the kidney are less often followed by pneumonia, while the figures in operations on the bladder are a little higher. The low incidence of pneumonia following pelvic-gynecologic operations is remarkable. In this group, pneumonia occurred only twice in 358 operations.

Only one case of pneumonia occurred following operations on the extremities. It is very doubtful whether the pneumonia in this instance had anything connected with the operations; it followed a Thiersch skin grafting under nitrous oxid and oxygen anesthesia. Seven days later the patient had a chill, the temperature rose to 106 F., and signs of consolidation developed over the left lower lobe. It proved to be an ordinary lobar pneumonia, and was probably an intercurrent infection.

Operations on the head, neck, spinal cord and chest (operations on the lung itself are not included in these statistics) were not followed by pneumonia in a single instance.

Table 2 shows that pneumonia occurs following operations on the abdominal viscera even under local anesthesia. The number of operations is too small for comparison.

TABLE 3.—*Lobes Involved in All Cases of Pneumonia Following Operations Performed Under General and Local Anesthesia*

	No. of Cases
Right lower lobe	35
Left lower lobe	17
Both lower lobes	7
Right upper lobe	1
Left upper and left lower lobe	1
Right upper and both lower lobes	2

Table 3 shows that the lower lobes are the ones usually affected in postoperative pneumonia, and that the right lower lobe is more often involved than the left.

The duration of the pneumonia was often difficult to determine because of the slow disappearance of the physical signs, and in some cases because of a complication such as an effusion.

Of great interest is the fact that fifty-two cases of pneumonia out of a total of sixty-three cases occurred within three days after operation.

Tables 6 and 7 are given to show that postoperative pneumonia occurs at all ages, and that the time of the year does not seem to influence its occurrence.

COLLAPSE OF THE LUNG

In my previous article [1] the conclusion was reached that the greater number of cases of postoperative pneumonia were due to infection taking place in atelectatic or collapsed areas in the lung. Attention was, therefore, especially directed toward finding any atelectatic areas in the lungs on the first few days following the operation. In many cases following abdominal operations, we were able to observe signs of consolidation over a part of a lower lobe, which disappeared within from twenty-four to forty-eight hours and often during the examination after a fit of coughing. In some of these cases a roentgen-ray examination showed a high position of the diaphragm on the affected side.

TABLE 4.—*Duration of Pneumonia in Cases in Which Patients Recovered*

Duration	No. of Cases
3 days	3
4 days	5
5 days	10
6 days	7
7 days	7
9 days	2
11 days	1
Indefinite in duration because of slow disappearance of physical signs	12

Two cases of postoperative pneumonia were complicated by massive collapse of the lung. Because of this uncommon occurrence, these cases are here reported.

CASE 1.—M. P., a man, aged 32, underwent a hernioplasty for left indirect inguinal hernia, Feb. 15, 1923. Nitrous oxid and ether anesthesia was used. The following day he complained of

cough and pain in the chest. Physical examination showed almost absent breath sounds anteriorly over the right lung below the third rib, with dull tympany on percussion. Posteriorly, on the right side, there was marked dulness below the angle of the scapula, and diminished breath sounds from the middle of the scapula downward. The heart was displaced to the right. A roentgen-ray examination, February 17, showed a dense shadow over the lower half of the right lung, and the heart, trachea and mediastinum displaced to the right. The physical signs mentioned persisted until February 20. On this day there were found dulness, bronchial breathing, and râles over the lower half of the right lower lobe. Over the rest of the lung, anteriorly and posteriorly, resonance and breath sounds were normal. The heart had returned to its normal position. This was confirmed by roentgen-ray examination. The physical signs of consolidation gradually disappeared. Roentgen-ray examination, March 3, showed that both lungs were clear, and the heart, trachea and mediastinum in normal position.

TABLE 5.—*Number of Days that Elapsed Between Operation and Onset of Pneumonia*

No. of Days	No. of Cases
1 day	19
2 days	33
3 days	4
5 days	1
6 days	2
7 days	1
8 days	1
9 days	2

CASE 2.—D. J., a man, aged 35, was admitted to Dr. Brill's service, May 26, 1923, complaining of abdominal cramps from which he had suffered for five months. In the course of the study of this case, a roentgen-ray examination of the chest, June 9, showed both lungs to be clear, and the heart, trachea and mediastinum in normal position. June 20, the patient underwent a colectomy for carcinoma of the ileocecal junction, under nitrous oxid and oxygen anesthesia. The same day his temperature rose to 102 and remained high, with remissions, until June 26, when it fell to 99.6, and thereafter gradually returned to normal. The day following the operation, physical examination of the chest showed markedly diminished breath sounds over the lower two thirds of the right lung, anteriorly and posteriorly. Percussion over the right lung elicited a tympanitic note in front, and dulness from the spine of the scapula to the base posteriorily. The apex beat was not palpable, and, on percussion, the left border of the heart was 6 cm. from the midsternal line. Roentgen-ray examination, June 22, showed the heart, trachea and mediastinum displaced toward the right side, a high position of the diaphragm on the right side, and a pneumonic process in the lower half of the right lung. The physical signs persisted until June 29, when bronchial breathing was heard over the lower half of the right lower lobe. From this day on the breath sounds gradually became more distinct over the remainder of the lung, and the bronchial breathing over the right base gradually diminished. The heart, however, remained somewhat displaced toward the right side, as shown by repeated roentgen-ray examinations, until the patient was discharged from the hospital.

TABLE 6.—*Cases of Postoperative Pneumonia Grouped According to Age*

	No. of Cases		No. of Cases
From 15 to 25 years	6	From 46 to 55 years	14
From 26 to 35 years	18	From 56 to 65 years	6
From 36 to 45 years	17	Above 65 years	2

These two cases definitely prove the occurrence of massive collapse of the lung following operations on the abdomen. As the collapse of the lung disappeared, the signs of pneumonic consolidation became more definite.

CONCLUSION

These observations strengthen the belief that the greater number of cases of postoperative pneumonia are produced in the manner which I have previously described. To recapitulate: Following operations on the abdomen there occur small or large areas of atelectasis or collapse in the lungs, especially in the lower lobes. When a bronchitis is present at the time of the operation, or irritation by the anesthetic prepares the bronchi for infection, any such infection is liable to spread to the atelectatic lung, with the production of pneumonia.

How the collapse of the lung is produced is unknown. It may possibly be caused by a sudden closure of all the bronchioles in an area of the lung, as a reflex from the gastro-intestinal tract by way of the vagus. The occurrence of massive collapse of the lung and of postoperative pneumonia mainly after abdominal operations, and especially after operations on the gastro-intestinal tract, gallbladder, appendix and hernias, is in favor of this hypothesis.

By placing the administration of the anesthetic in the hands of a trained anesthetist, by postponing operations whenever possible in cases in which there is acute respiratory infection until the infection has subsided, and by exercising special care in cases in which there are emphysema and chronic bronchitis that constitute the most important predisposing factors, the occurrence of postoperative pneumonia can be reduced to a minimum. This has been shown to be the case in the gynecologic service of Mount Sinai Hospital, in which only two cases have occurred within the last year, as well as in the general surgical services, in operations not involving the abdominal viscera, particularly those mentioned previously in this paper. Pneumonia cannot apparently be wholly controlled even under the most favorable conditions in abdominal operations, especially in those involving the group of organs previously mentioned.

TABLE 7.—*Cases Grouped According to the Month in Which They Occurred*

Month	No. of Cases	Month	No. of Cases
September	3	March	7
October	5	April	3
November	4	May	10
December	9	June	6
January	2	July	6
February	5	August	3

141 West One Hundred and Tenth Street.

General Management of Tuberculosis.—By rest is not meant merely cessation from work, but lying down in the easiest possible position for the entire twenty-four hours, as long as there is an active process, especially with fever. The lessened amount of work thrown upon a diseased lung and the consequently lessened impairment of circulation, by this measure, is enormous. Nor, in the most active cases, is physical rest sufficient, but mental rest must also be obtained as far as possible, even to the extent of limiting company and conversation, also freedom from domestic or business cares, even in a supervising capacity, is imperative. This is probably one of the main reasons why patients do so much better in a nursing home or some such regulated environment, than they do in their usual surroundings, but this may be due largely to the fact "that most soldiers fight well en masse while they may be cowards when fighting alone."—Gilbert, O. M., *Nebraska M. J.* (January) 1924.

Clinical Notes, Suggestions, and New Instruments

A MULTIPLE ELECTRICAL STETHOSCOPE FOR TEACHING *

C. J. GAMBLE, M.D., AND D. E. REPLOGLE, PHILADELPHIA

For some years, efforts have been made to secure a multiple stethoscope for use in teaching classes of medical students. An instrument for the subdivision of the sounds from a single large chest piece into a number of rubber tubes leading to the usual stethoscope headpieces has been used by some. For successful operation, however, its capacity is limited to six or eight students, and the sounds are very faint.

Heart sounds and murmurs have been transmitted electrically and recorded graphically by Einthoven.[1] Williams,[2] using an electromagnetic transmitter and two stages of electrical amplification, secured more accurate graphic records of murmurs. Since we began work on this apparatus, three articles have appeared describing the audible distribution of heart sounds. Squier[3] amplified the sounds of the heart for a group of physicians. Abbott,[4] using a transmitter tuned to exclude all except very low frequencies, amplified the heart sounds and distributed them through a loud speaker. Jacobsohn[5] demonstrated a somewhat similar device, apparently also using a loud speaker. No mention is made in these articles of the transmission of faint heart murmurs, or of the amplification of lung sounds and fine râles, which is the especial advantage of our instrument.

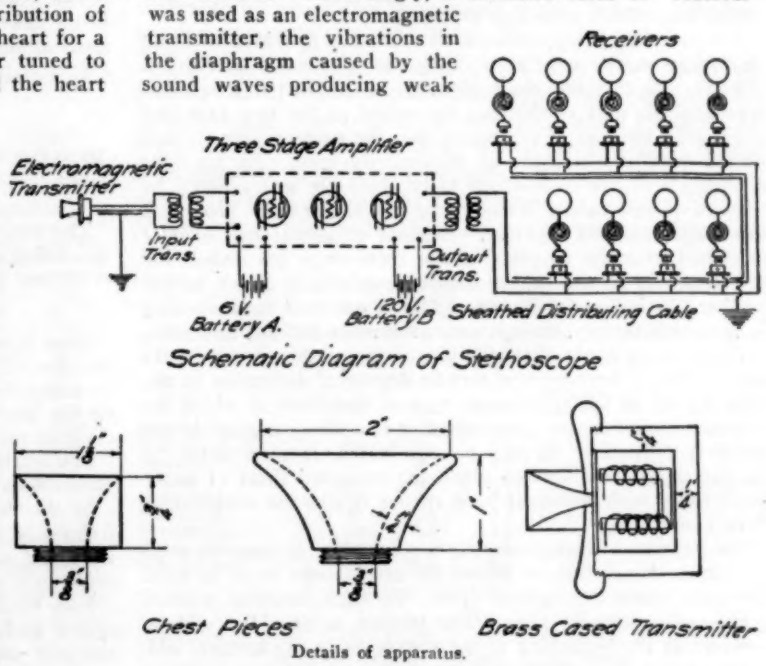
The apparatus described here, which has been used by Dr. Richard Cabot,[6] now makes possible the teaching of large classes in the auscultatory part of physical diagnosis. Its accurate imitation of the sounds as usually heard has been assured largely by Dr. Cabot's criticism of the quality of sounds produced by the apparatus, and his selection of the more successful from the various devices with which we have experimented. Much of this work has been done while the stethoscope was in actual use with a class of seventy-five graduate physicians under the Harvard Courses for Graduates at the Massachusetts General Hospital. To this class, as stated in the previous article,[6] there were transmitted all the recognized types of murmurs, various degrees of alteration of breath sounds, and fine and coarse râles, with a quality indistinguishable from and an intensity sometimes slightly greater than that secured with the usual form of stethoscope.

Further work with this instrument is planned by Dr. Cabot during the teaching of the second year class in physical diagnosis at the Medical School of Harvard University during the present winter. At this time its value for the use of students who are novices in auscultation can be better estimated.

The essential part of the apparatus is an electrical amplifier, designed for three successive magnifications of the current changes produced in a very sensitive transmitter. Recent developments in radio receiving have made the three element vacuum tubes which are used for this purpose so familiar that they scarcely need description. For the use which we have made of them it is extremely important that the connections whereby the electrical oscillations of increasing intensity are relayed from tube to tube should be so designed as to transmit them free from distortion. Even changes of timbre, such as occur in the spoken voice when transmitted over the ordinary telephone, would not be permissible. To accomplish this the wiring has been especially designed and the amplifier built and generously lent by the engineering department of the Western Electric Company of New York. It is of the type known as resistance coupled, using two high impedance tubes, No. 102-D, for the first two stages, and a low impedance or "power" tube, No. 101-D, to furnish current of sufficient amperage in the third, or output stage.

So rapid has been the progress of this branch of electrical science during the three years in which we have been experimenting with this amplifier that a different and improved design would be used by the company in making the apparatus at present. For this reason the wiring diagram of the amplifier is not included in this article.

Owing to the high degree of magnification of the sound which was necessary, it was found impossible to use a carbon granule transmitter, even of the most refined type, for these give rise to a certain amount of "carbon" noise which cannot be eliminated. Accordingly, a sensitive form of "receiver" was used as an electromagnetic transmitter, the vibrations in the diaphragm caused by the sound waves producing weak oscillations of the electric current. This is the type of transmitter used by Williams.[2]



Details of apparatus.

For this purpose, two receivers were tested and found to be approximately equally successful. One, the Western Electric No. 509-W, is air damped, the diaphragm being separated from the flat inner surface of the case by an aluminum washer 0.0005 inch thick. The relatively great friction of this thin layer of air prevents the diaphragm from vibrating in its own characteristic period, and causes it to follow accurately the sound waves that fall on it. The other transmitter, the Baldwin Type C, secures relative freedom from inherent periodicity by the use of a mica in place of an iron diaphragm. The latter gave somewhat greater volume, but with perhaps slightly less faithful reproduction than the former.

Great care was necessary to exclude extraneous noises properly, such as nearby footsteps or the unavoidable shifting of the fingers holding the transmitter. The best results were obtained by placing the transmitter in a brass case approximately one-fourth inch in thickness. The increased quietness more than compensated for the added weight of the transmitter unit.

For the "bell," or chest piece, two sizes were used, each turned out of brass, one 2 inches, the other 1⅛ inches in diameter. The larger gave the greater volume, the smaller was used for children or when irregularities of the surface of the chest made air-tight approximation of the larger difficult. A bell one-eighth inch in thickness was found to be too thin to exclude extraneous noises, a thickness of one-fourth inch

* From the Massachusetts General Hospital.

1. Einthoven, W.: Die Registrirung der menschlichen Herztöne mittels des Saitengalvanometers, Arch. f. d. ges. Physiol. **117**: 461 (April) 1907; Ein dritter Herzton, ibid. **120**: 31 (Oct.) 1907.
2. Williams, H. B.: New Method for Graphic Study of Heart Murmurs, Proc. Soc. Exper. Biol. & Med. **18**: 179 (March 16) 1921.
3. Squier, reported by Winters, S. R.: Diagnosis by Wireless, Scient. Am. **124**: 465 (June 11) 1921.
4. Abbott, R. B.: Eliminating Interfering Sounds in a Telephone Transmitter Stethoscope, Phys. Rev. **21**: 200 (Feb.) 1923. Keiper, G. F.: A Multiple Electrical Stethoscope for Teaching Purposes, J. A. M. A. **81**: 679 (Aug. 25) 1923.
5. Amplified Audibility of Heart Sounds, Berlin Letter, J. A. M. A. **80**: 493 (Feb. 17) 1923.
6. Cabot, R. C.: A Multiple Electrical Stethoscope for Teaching Purposes, J. A. M. A. **81**: 298 (July 28) 1923.

proving satisfactory. The best lengths for the bells were found to be 1 inch for the larger, and three-fourths inch for the smaller.

The best results were secured with a three-eighths inch opening at the smaller end of the bell immediately in front of the diaphragm. In the Baldwin type it was found very important to place this opening as close as possible to the diaphragm.

For the distribution of the sounds, an individual receiver is provided for each listener. These are connected in multiple to the output of the amplifier by a pair of wires laid along the rows of seats in the amphitheater in which the apparatus is to be used. To exclude the inductive hum from nearby power or lighting circuits, and to prevent the inductive coupling of the output and input circuits and the consequent "howling" or oscillation of the amplifier, it was necessary to shield the distributing wires. For this purpose a pair of wires surrounded by a spirally wound metallic sheathing was used, the sheathing being connected to the ground. Additional protection was secured by encasing the first stages of the amplifier in a metal box, which also was grounded.

For economy of appratus, each student is provided with but one receiver, the type used being the Western Electric No. 509-W. To this the chest piece of an ordinary stethoscope was applied, thus conducting the sound to the two ears and preventing the loss of vibrations into the surrounding air that occurs with the receiver as customarily used. An air-tight connection of the stethoscope to the receiver was assured by the use of soft rubber between the rim of the chest piece and the surface of the receiver. A sheet of dental rubber dam stretched over the earpiece of the receiver is convenient for the purpose. As the rubber dam is not durable, a soft rubber washer 2½ inches in diameter with a one-half inch opening is more satisfactory, though somewhat more difficult to secure.

There is no doubt that this use of the stethoscope with its rubber tubing introduces a certain degree of distortion in the sounds; but as this is the same type of distortion to which the clinician must become accustomed, it is entirely negligible for teaching purposes. It may be eliminated, if so desired, by the use of two receivers to which are cemented short (1 inch) brass tubes with the usual hard rubber tips of the stethoscope head piece.

For permanent installation, it is convenient to place at each seat in the amphitheater where the stethoscope is to be used a double contact telephone jack. To each receiver is then connected a suitable plug. The student is provided with a receiver at the beginning of the course or of the lecture, and may connect it at any seat he chooses. A less expensive device, which has thus far proved satisfactory in the installation at the Massachusetts General Hospital, is a two contact socket such as is frequently used in the wiring for automobile illumination, with an appropriate two contact plug.

The electrical stethoscope is readily adapted to transmission of heart or lung sounds for considerable distances. In such cases the amplifier should be taken to the bedside, for the induction of neighboring electric wiring acting on a long input circuit, even with carefully grounded sheathing, was found to give an annoying hum when amplified. With the amplifier in the ward, however, the output sounds were successfully transmitted over 600 feet of wire. In such cases, verbal comment on the sounds heard, or on the diagnosis of the case, may still be readily made to the class, merely by removing the transmitter from the patient's chest and speaking into it in a low voice.

An attempt was made to use a loud speaker for distributing the sounds to the class in place of the multiple receivers, but it was very disappointing. The time of loud murmurs could readily be determined, but it was not possible to transmit the more delicate sounds, or to approximate the true quality of any sound. Were the individual receivers not available, such an apparatus would be useful for elementary instruction; but until very marked improvements are made in eliminating the distortion from loud speakers, they will not replace the somewhat more cumbersome form which we have used. The Western Electric Company assures us that marked progress on such improvements is even now being made.

Very recent tests of an amplifier of the new design show that marked improvements have been made on the apparatus that we used last June. With the aid of electrical filters, devices composed of condensers and inductances, appropriately connected, we have been able to transmit only such sounds as have a frequency above or below a chosen point. This has given us definite information in regard to the absolute pitch of the sounds in which we are interested from a diagnostic standpoint, and has enabled the new apparatus to be designed with a view to marked efficiency in the frequency ranges in question.

The use of the filters also makes possible greater amplification by the exclusion of undesirable sounds. We have, for example, been able to reproduce the fetal heart sounds on a loud speaker without interference from friction or room noises, and to eliminate the first and second heart sounds while listening to râles near the precordium or to pericardial rubs. Only an extended series of further clinical tests can show us the limits of the new diagnostic possibilities.

The Western Electric Company is planning the production in the near future of additional sets of the apparatus for such medical schools as wish to secure them.

University of Pennsylvania School of Medicine.

MÉNIÈRE'S SYNDROME FOLLOWING THE USE OF RADIUM

Emma J. Thompson, M.D., Hartford, Conn.

The recent article of Duke[1] on Ménière's syndrome caused by allergy prompts me to report another possible cause of this syndrome in the use of radium near the ears:

REPORT OF CASE

Miss S., aged 62, entered Hartford Hospital, Sept. 25, 1923, because of hyperthyroidism, and was given an eleven-hour treatment by radium. It was applied to twelve different places on the neck, two of them being over the tonsils externally, close to the ears.

She left the hospital the next day, but has been under careful observation since.

In the three weeks following the treatment, she remarked frequently that the only places where she "felt the radium" were the ears. She said that they seemed "unnatural," and sometimes described the feeling as a "flopping sensation."

Just three weeks after the treatment, she had a sudden, severe attack of vertigo, which lasted forty-five minutes and left her with the former ear symptoms increased, and she complained that her whole head felt "injured." There was no vomiting and no disturbance of the heart during this attack.

A week later she had a much more serious seizure, which lasted two hours in its greatest intensity and was accompanied by vomiting, profound disturbance of the heart and nystagmus.

She thought that she was dying; her condition was certainly alarming. As the more acute vertigo passed, there developed, at intervals, involuntary nodding movements of the head forward and sideways. This symptom lasted about twelve hours. Coincident with this attack, a slight radium burn appeared over the thyroid. For nearly a week there was disturbed equilibrium, gradually decreasing in severity when she had her third attack. This resembled the first in that it lasted three quarters of an hour and was not attended by vomiting. There was a very rapid and irregular pulse, the heart at times being in the condition of auricular fibrillation. During the subsidence of this attack she complained that the "injured" feeling extended from the ears to the base of the skull at the back of the neck. She rested in bed for six weeks, is now getting about for part of the day, and has had no recurrence of vertigo.

COMMENT

Probably there is still much to learn about radium, and the report of this case may be of interest to such as may contemplate the use of this powerful agent near the ears.

154 Church Street.

1. Duke, W. W.: Ménière's Syndrome Caused by Allergy, J. A. M. A. 81: 2179 (Dec. 29) 1923.

Special Article

TYPHOID IN THE LARGE CITIES OF THE UNITED STATES IN 1923

TWELFTH ANNUAL REPORT

THE JOURNAL presents its twelfth annual survey [1] of typhoid fever mortality in the cities of the United States that had more than 100,000 population in 1920. The statistics of the fourteenth census showed that there were in that year sixty-nine cities with a population of more than 100,000. These may be conveniently considered for our purpose in six groups. More than one fourth of the population of the United States lives in these cities, and nearly one sixth lives in the twelve cities with more than 500,000 population.[2]

TABLE 1.—*Classification of Cities*

Population		Number of Cities
Group 1.	More than 500,000	12
Group 2.	From 300,000 to 500,000	9
Group 3.	From 200,000 to 300 000	12
Group 4.	From 150,000 to 200 000	10
Group 5.	From 125,000 to 150,000	9
Group 6.	From 100,000 to 125,000	17

TABLE 2.—*Death Rates from Typhoid in Cities of Group 1 (More Than 500,000 Population)*

	Deaths from Typhoid per 100,000 Population					
	1923	1922	1921	Average 1916-1920	Average 1911-1915	Average 1906-1910
Boston	1.0	1.4	3.1	2.5	8.0	16.0
Cleveland	1.7	2.2	3.4	4.0	10.0	15.7
Philadelphia	1.7	2.7	2.3	4.9	11.2	41.7
Chicago	1.9	1.0	1.1	2.4	8.2	15.8
New York	2.4	2.2	2.1	3.2	8.0	13.5
San Francisco	3.0	2.2	4.2	4.6	13.6	27.3
Los Angeles	3.1	3.7	2.6	3.6	10.7	19.0
Pittsburgh	3.7	4.6	4.1	7.7	15.9	65.0
St. Louis	4.0	4.2	3.6	6.5	12.1	14.7
Detroit	4.0	5.0	5.8	8.1	15.4	22.8
Buffalo	4.3	3.5	4.2	8.1	15.4	22.8
Baltimore	4.3	4.0	5.4	11.8	23.7	35.1

As has been the case since 1920, every one of the twelve largest cities (Group 1, more than 500,000 population) had a typhoid death rate under 10 (Table 2). For the first time since these summaries were begun, every city in the group had a rate under 5. Although 1922 marked the lowest point heretofore reached for several cities in the group, 1923 shows still further improvement. Seven of the twelve cities had less typhoid in 1923 than in 1922. Unless some unusual outbreak occurs, every city in this group bids fair to have a considerably lower average for the current quinquennium than for 1916-1920. Cleveland and Detroit are showing steady improvement, and Baltimore seems likely to cut in half the rate for the previous five year period.

From the *Weekly Bulletin* of the New York City Health Department, we learn that the probable mode of typhoid infection in that city for the quarter ending Sept. 30, 1923, was traced in 43 per cent. of the cases, which is about the same proportion as in preceding years. On the other hand, the percentage of cases diagnosed as typhoid and confirmed by laboratory diagnosis was only 56, as compared with 70 per cent. in 1922. The increasing rarity of typhoid in many communities may perhaps render a correct diagnosis more of a problem in the future than it has been in the past. From the published figures, New York seems to have had a good deal more typhoid in 1923 than in 1922, 115 cases being reported in the first quarter of the year, as compared with forty-eight for 1922. An increase of twenty-eight cases was noted in the second quarter, and one of forty-seven in the third. In spite of this considerable increase, the New York typhoid death rate has not been greatly altered (Table 2).

For the first time since 1916, Chicago has suffered from a water-borne outbreak of typhoid. Lake Michigan water is drawn from several intake cribs located at a considerable distance from shore, and is distributed by a number of different pumping stations. The water district served by one of these stations (Sixty-Eighth Street) had far more than its proportionate share of typhoid in November, and there seems little doubt that the water from this source was in some way contaminated. The moderate chlorination to which the Chicago water supply was subjected throughout this period perhaps prevented a more serious outbreak. An investigation of the conditions surrounding the Sixty-Eighth Street supply has been taken up with commendable promptitude and energy by the city authorities. Filtration of Chicago's water supply is being discussed by some engineering circles in Chicago, but until something is done to check the ridiculously large waste of water in that city the financial burden of a filtration

TABLE 3.—*Death Rates from Typhoid in Cities of Group 2 (from 300,000 to 500,000 Population)*

	Deaths from Typhoid per 100,000 Population					
	1923	1922	1921	Average 1916-1920	Average 1911-1915	Average 1906-1910
Minneapolis	1.0	1.9	1.2	5.0	10.6	32.1
Milwaukee	1.0	2.5	1.9	6.5	13.6	27.0
Newark	2.3	2.7	2.8	3.3	6.8	14.6
Seattle	2.5	2.8	2.2	2.9	5.7	25.2
Indianapolis	2.6	5.4	7.3	10.3	20.5	30.4
Cincinnati	3.2	2.9	3.4	3.4	7.8	30.1
Washington	6.0	5.2	6.6	9.5	17.2	36.7
Kansas City, Mo.	7.1	4.9	11.0	10.6	16.2	35.6
New Orleans	8.8	10.2	9.3	17.5	20.9	35.6

TABLE 4.—*Death Rates from Typhoid in Cities of Group 3 (from 200,000 to 300,000 Population)*

	Deaths from Typhoid per 100,000 Population					
	1923	1922	1921	Average 1916-1920	Average 1911-1915	Average 1906-1910
Providence	0.8	0.0	2.5	3.8	8.7	21.5
Akron	1.4	1.9	5.7	...	...	....
Jersey City	1.6	1.6	3.5	4.5	7.2	12.6
Rochester	1.9	2.5	3.2	2.9	9.6	12.8
Portland, Ore.	2.9	3.3	3.0	4.5	10.8	23.2
St. Paul	3.3	2.0	7.1	3.1	9.2	12.8
Oakland	3.3	3.0	1.3	3.8	8.7	21.5
Louisville	3.5	8.0	5.5	9.7	19.7	52.7
Columbus	4.6	1.1	4.0	7.1	15.8	40.0
Denver	5.2	5.9	4.5	5.8	12.0	37.5
Toledo	6.0	3.8	8.6	10.6	31.4	37.5
Atlanta	17.1	10.9	11.0	14.2	31.4	58.4

1. The preceding articles were published May 31, 1913, p. 1702; May 9, 1914, p. 1473; April 17, 1915, p. 1322; April 22, 1916, p. 1305; March 17, 1917, p. 845; March 16, 1918, p. 777; April 5, 1919, p. 997; March 6, 1920, p. 672; March 26, 1921, p. 860; March 25, 1922, p. 890, and March 10, 1923, p. 691.

2. The deaths and death rates for 1923 used in this summary are those given "for typhoid and paratyphoid fever" in the Weekly Health Index of the U. S. Department of Commerce, excepting those for the cities of Scranton, Pa., Reading, Pa., Hartford, Conn., and Des Moines, Iowa. For these four cities the number of deaths has been sent us by the local officer of health, and the rates have been calculated on the basis of midyear 1923 population estimates.

plant could hardly be undertaken. Although Lake Michigan received unusual pollution as the result of torrential rains in the autumn of 1923, chlorination seems to have proved an effectual safeguard except at the one pumping station mentioned above.

TABLE 5.—*Death Rates from Typhoid in Cities of Group 4 (from 150,000 to 200,000 Population)*

	Deaths from Typhoid per 100,000 Population					
	1923	1922	1921	Average 1916-1920	Average 1911-1915	Average 1906-1910
Syracuse	2.2	1.6	3.9	7.7	12.3	15.6
Worcester	2.6	3.1	3.2	3.5	5.0	11.8
Dayton	3.6	3.7	5.2	9.3	14.8	22.5
New Haven	4.6	5.8	4.7	6.8	18.2	30.8
Omaha	5.4	4.4	4.0	5.7	14.9	40.7
Richmond	5.5	4.4	5.6	9.7	15.7	34.0
Birmingham	7.7	12.5	17.0	31.5	....	....
San Antonio	9.8	5.6	16.6	23.3	29.5	....
Dallas	11.6	5.8	12.7	17.2	....	....
Memphis	13.6	8.9	9.0	27.7	42.5	35.3

The cities in Group 2 make an especially creditable showing, only three of the nine recording a higher rate than for the year before. New Orleans had a particularly low rate (8.8), and Milwaukee, with only

TABLE 6.—*Death Rates from Typhoid in Cities of Group 5 (from 125,000 to 150,000 Population)*

	Deaths from Typhoid per 100,000 Population					
	1923	1922	1921	Average 1916-1920	Average 1911-1915	Average 1906-1910
Hartford, Conn.	0.7	2.8	7.2	6.0	15.0	19.0
Des Moines	0.7	1.5	1.4	...	....	....
Bridgeport	1.4	0.6	2.7	4.8	5.0	10.3
Grand Rapids	1.4	0.6	2.8	9.1	25.5	29.7
Scranton, Pa.	1.4	1.4	6.5	3.8	9.3	31.5
Springfield, Mass.	1.4	1.4	4.4	4.4	17.6	....
Paterson, N. J.	2.9	2.1	5.8	4.1	9.1	19.3
Youngstown, Ohio	7.6	6.2	15.0	...	...	....
Houston, Texas	7.8	7.3	11.7	...	...	....

chlorination standing between it and a water supply at times highly polluted, records the very low rate of 1.0.

In Group 3, Providence, with only two deaths, all but equals its amazing record of 1922, and takes a long step toward becoming the banner city of the decade,

TABLE 7.—*Death Rates from Typhoid in Cities of Group 6 (from 100,000 to 125,000 Population)*

	Deaths from Typhoid per 100,000 Population					
	1923	1922	1921	Average 1916-1920	Average 1911-1915	Average 1906-1910
Norfolk, Va.	0.0	6.4	4.1	...	....	....
New Bedford	0.8	0.0	2.3	6.0	15.0	16.1
Yonkers	0.9	0.0	2.9	4.8	5.0	10.3
Kansas City, Kan.	0.9	7.0	4.8	9.4	....	....
Lowell	2.6	2.6	5.2	5.2	10.2	13.9
Wilmington, Del.	2.6	5.1	4.4	....	....	....
Reading, Pa.	2.7	9.2	11.7	10.0	31.9	42.0
Albany	3.4	1.7	4.3	8.0	18.6	17.4
Cambridge	3.6	0.9	10.8	2.5	4.0	9.8
Salt Lake City	4.0	3.2	5.7	9.3	13.2	....
Camden	4.0	5.7	6.6	4.9	4.5	....
Fall River	4.1	3.3	2.4	8.5	13.4	13.5
Fort Worth	4.9	7.5	10.7	...	....	....
Tacoma	5.9	4.0	3.0	2.9	10.4	19.0
Spokane	7.7	5.7	4.7	4.9	17.1	50.3
Trenton	11.8	15.9	8.9	8.6	22.3	....
Nashville	12.3	16.2	20.4	20.7	40.2	61.2

with Yonkers and New Bedford its only competitors. Louisville breaks all its records with the very low rate of 3.5. Atlanta evidently had a bad year, with a rate (17.1) higher than the average for the 1916-1920 period.

In Group 4, New Haven seems to have come out of its typhoid rut, and for the last three years has stood pretty well among Northern cities, although still with a higher rate than most other New England communities. In this group, both Dallas and Memphis had relapses from their comparatively good records of 1922, but Birmingham made a fine showing.

In Group 5, Hartford, Conn., records but one death, the lowest death rate ever recorded in that city. In this group, Grand Rapids perhaps shows the greatest improvement for the current quinquennium as compared with 1916-1920.

Group 6 contains the only city (Norfolk, Va.) without a single typhoid death for the year 1923. Last year there were three in this class. New Bedford and

TABLE 8.—*Death Rates from Typhoid in 1922*

Honor Roll (from 0.0 to 2.0)			
Norfolk	0.0	Akron	1.4
Des Moines	0.7	Bridgeport	1.4
Hartford	0.7	Grand Rapids	1.4
Providence	0.8	Scranton	1.4
New Bedford	0.8	Springfield	1.4
Yonkers	0.9	Jersey City	1.6
Kansas City, Kan.	0.9	Cleveland	1.7
Boston	1.0	Philadelphia	1.7
Minneapolis	1.0	Chicago	1.9
Milwaukee	1.0	Rochester	1.9
First Rank (from 2.0 to 5.0)			
Syracuse	2.2	Albany	3.4
Newark	2.3	Louisville	3.5
New York	2.4	Dayton	3.6
Seattle	2.5	Cambridge	3.6
Indianapolis	2.6	Pittsburgh	3.7
Worcester	2.6	St. Louis	4.0
Lowell	2.6	Detroit	4.0
Wilmington, Del.	2.6	Salt Lake City	4.0
Reading, Pa.	2.7	Camden	4.0
Portland, Ore.	2.9	Fall River	4.1
Paterson, N. J.	2.9	Buffalo	4.3
San Francisco	3.0	Baltimore	4.3
Los Angeles	3.1	Columbus	4.6
Cincinnati	3.2	New Haven	4.6
St. Paul	3.3	Fort Worth	4.9
Oakland	3.3		
Second Rank (from 5.0 to 10.0)			
Denver	5.2	Youngstown	7.6
Omaha	5.4	Birmingham	7.7
Richmond	5.5	Spokane	7.7
Tacoma	5.9	Houston	7.8
Washington	6.0	New Orleans	8.7
Toledo	6.0	San Antonio	9.8
Kansas City, Mo.	7.1		
Third Rank (from 10 to 20)			
Dallas	11.6	Memphis	13.6
Trenton	11.8	Atlanta	17.1
Nashville	12.3		

Yonkers have this year each but a single typhoid death against them. Reading, Pa., which for some years past had had one of the highest rates in this group, has dropped this year to 2.7. The case of Trenton is again worth noting; for the second year in succession it has a typhoid rate of 11.8, which places it in the lowest rank together with four other cities, all of them in the South. Trenton is supplied with filtered Delaware River water, and there is no apparent reason why it, a city with a population of not much more than 100,000, should have had exactly the same number of deaths as Cleveland. The maintenance of a relatively high typhoid rate for two successive years certainly calls for a thorough investigation.

The fifty-seven cities of which we have records extending back to 1910 had a somewhat higher total typhoid death rate than in 1922 (Table 10), but with the single exception of that year, the rate is the lowest ever recorded (3.45). As against the slight increase

shown in these cities, the sixty-nine cities with typhoid records for the last four years show a slight typhoid reduction in 1923 as compared with the preceding year (Table 9). While the actual percentage reduction has slowed up, it is evident that improvement in the typhoid situation in many cities is still taking place. We believe that the end is not yet reached, and that a still further

TABLE 9.—*Average Deaths from Typhoid Per Hundred Thousand in Each Group, 1916, 1917, 1918, 1919, 1920, 1921 and 1922*

Group	Year	No. of Cities	Total Population	No. of Typhoid Deaths	Average Deaths per 100,000
1	1920	12	16,526,740	460	2.8
1	1921	12	16,851,750	460	2.7
1	1922	12	17,037,727	441	2.5
1	1923	12	17,324,605	439	2.5
2	1920	9	3,463,760	141	4.1
2	1921	9	3,498,783	174	4.9
2	1922	9	3,540,356	152	4.2
2	1923	9	3,591,726	135	3.8
3	1920	12	2,951,373	142	4.8
3	1921	12	2,990,971	148	4.8
3	1922	12	3,047,987	112	3.6
3	1923	12	3,115,397	129	4.1
4	1920	10	1,707,624	135	7.9
4	1921	10	1,740 200	143	8.2
4	1922	10	1,789,285	101	5.6
4	1923	10	1,828,331	121	6.7
5	1920	7	962,436	46	4.8
5	1921	9	1,123,181	70	6.2
5	1922	9	1,263,044	35	2.7
5	1923	9	1,262,923	36	2.8
6	1920	15	1,718,166	83	4.8
6	1921	17	1,948,414	132	6.7
6	1922	17	1,906,279	112	5.6
6	1923	17	2,087,231	86	4.2
Total	1920	65	27,330,099	1,007	3.7
Total	1921	69	28,291,435	1,138	4.0
Total	1922	69	28,644,628	953	3.3
Total	1923	69	29,160,213	946	3.2

diminution in typhoid in American cities will be noted within the next few years. It is not likely, however, that the decline will be as rapid or as marked as it has been in the past decade, and it seems probable that a reduction much below the point now reached will come about only when a curb is put on rural typhoid throughout the country. Eradication of rural typhoid is a difficult but by no means impossible task, and it is encouraging that many health officers throughout the country have set their hands to this undertaking. The cities, as well as the country, will profit by every successful attempt to do away with typhoid in country districts.

TABLE 10.—*Total Average Typhoid Death Rate (1910-1921)*

	Total Population (57 Cities)* Estimated by the U. S. Census Bureau Methods	Typhoid Deaths	Typhoid Death Rate per 100,000
1910	20,996,035	4,114	19.59
1911	21,545,014	3,391	15.74
1912	22,008,906	2,775	12.56
1913	22,642,972	2,892	12.77
1914	23,191,951	2,408	10.38
1915	23,740,980	2,068	8.71
1916	24,205,359	1,842	7.61
1917	24,740,008	1,647	6.65
1918	24,971,278	1,557	6.23
1919	25,526,186	987	3.87
1920	26,154,013	921	3.52
1921	26,561,469	978	3.68
1922	26,986,843	851	3.15
1922	27,365,408	946	3.45

* Twelve cities are omitted from this summary because data for the full period are not available

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

CORPUS LUTEUM-LEDERLE.—The fresh substance from the corpora lutea of the hog or cow, dried and powdered without the addition of preservatives or diluent.

Actions and Uses.—See Ovary, New and Nonofficial Remedies, 1923, p. 210.

Dosage.—0.12 Gm. (2 grains) or more daily. Corpus Luteum-Lederle is supplied in the form of tablets only.

Manufactured by Lederle Antitoxin Laboratories, New York. No U. S. patent or trademark.

Tablets Corpus Luteum-Lederle, 2 grains.

CORPUS LUTEUM EXTRACT-LEDERLE.—A sterile solution of those constituents of corpus luteum which are soluble in water containing sodium chloride 0.85 per cent., sodium citrate 1 per cent. and chlorbutanol 0.5 per cent. Each Cc. contains 0.02 Gm. of soluble matter in addition to sodium chloride and sodium citrate and chlorbutanol as preservative.

Actions and Uses.—See Ovary, New and Nonofficial Remedies, 1923, p. 210.

Dosage.—1 Cc. intramuscularly every second day. In severe cases daily doses are said to be indicated.

Manufactured by Lederle Antitoxin Laboratories, New York. No U. S. patent or trademark.

Ampules Corpus Luteum Extract-Lederle, 1 Cc.
Corpus Luteum Extract-Lederle, 5 Cc. vial.

Corpus luteum extract-Lederle is prepared by macerating corpus luteum-Lederle with three portions of a solvent consisting of an aqueous solution of sodium chloride 0.85 per cent., sodium citrate 1 per cent. and chlorbutanol 0.5 per cent. The united extracts are clarified, analyzed for organic solids, and glycerin added so that it contains 5 per cent. The liquid is then adjusted so that it contains 0.02 Gm. of the soluble corpus luteum substance in 1 Cc. and it is then sterilized by filtration through a Berkfeld filter.

OVARIAN RESIDUE-LEDERLE.—The residue from the fresh ovaries of the hog or cow after the ablation of the corpus luteum, dried and powdered, without the addition of preservative or diluent.

Actions and Uses.—Ovarian residue is used for the same conditions as the entire ovarian substance.

Dosage.—0.2 Gm. (3 grains) or more daily. Ovarian residue-Lederle is supplied in the form of tablets, only.

Manufactured by Lederle Antitoxin Laboratories, New York. No U. S. patent or trademark.

Tablets Ovarian Residue-Lederle, 3 grains.

The portion of the ovary of the cow or hog remaining after the removal of the corpora lutea is finely minced and dried at or below 38 C. One part of ovarian residue-Lederle represents approximately 5 grains of fresh substance.

SILVER NITRATE SOLUTION 1 PER CENT.-LEDERLE.—An aqueous 1 per cent. solution of silver nitrate contained in ampoules composed of beeswax.

Actions and Uses.—Silver nitrate solution 1 per cent.-Lederle is intended for the prophylaxis of ophthalmia neonatorum.

Dosage.—A pinhole is made at one end of the ampoule and, after suitable preliminary cleansing of the eye, two drops are placed in each eye of the newborn.

Prepared by Lederle Antitoxin Laboratories, New York. U. S. patent applied for. No U. S. trademark.

Ampoules solution silver nitrate 1 per cent.-Lederle: Each ampoule contains solution silver nitrate 1 per cent. approximately 0.2 Cc.

WHOLE OVARY-LEDERLE.—Whole ovarian glands of the hog or cow, freed from extraneous matter and dried at or below 38 C.

Actions and Uses.—See general article, Ovary, New and Nonofficial Remedies, 1923, p. 210.

Dosage.—0.3 Gm. (5 grains) or more daily. Whole Ovary-Lederle is sold in the form of tablets only.

Manufactured by the Lederle Antitoxin Laboratories, New York. No U. S. patent or trademark.

Tablets Whole Ovary-Lederle, 5 grains.

Whole Ovary-Lederle is a yellowish powder, having a peculiar odor. It is partially soluble in water.

One part represents approximately 5 parts of the fresh animal ovary.

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SATURDAY, FEBRUARY 2, 1924

TYPHOID FEVER IN 1923

Elsewhere in this issue,[1] THE JOURNAL publishes its annual summary of typhoid death rates in the larger American cities. It is evident from the figures there given that the period of rapid reduction in this disease, which began about 1910 and lasted to about 1919, is now at an end. For the last five years the total rate for the whole group of cities with a population something over 25,000,000 has fluctuated within a rather narrow range, not above 4.0 and not below 3.2.

While some further improvement in typhoid death rates may be anticipated, there is one factor that is likely to make the control of this disease a more serious problem in the near future. There is every reason to believe that the sudden drop in typhoid rates following the war was due in large part to the typhoid vaccination effected on such a large scale in the army camps. The new group of young men now reaching the age of typhoid susceptibility is not so well protected. Possibly also the effect of the army vaccinations is now wearing off, although there is no proof of this. It is, of course, problematic to what extent a typhoid increase for these reasons may be counterbalanced by improved methods of administrative control.

It is plain that the cities in our Southern states are having more trouble in bringing about typhoid decrease than are the Northern cities. Such cities as Memphis, Atlanta, Nashville and Dallas may, however, well be encouraged to renew their efforts by the success achieved by such cities as Richmond, Baltimore and particularly Louisville, and more recently by Birmingham and New Orleans.

The measures for effecting typhoid control are now about as well known as those for yellow fever: general sewerage, filtration or chlorination of water supplies, pasteurization of milk, and wherever these measures are effectually carried out, control of carriers. So long as rural typhoid persists at its present level, the cities will have to suffer for sins of sanitation not their own; but the success already obtained in certain municipalities over a considerable period of years demonstrates that, with methods now known and under conditions now prevailing, the average typhoid rate for this whole group of cities ought to be and probably can be reduced to about half its present figure. This may take a decade or two, but it is surely coming.

1. Special article, page 389.

INFECTION AND RICKETS

"Rickets is indeed a price paid by man for his abandonment of a life out-of-doors and a natural diet for a life in houses and a diet of denatured foodstuffs; it is a sign of the operation of the immutable law of nature that nothing out of accord with her shall flourish." These are the words with which Professor Park[1] of Yale University has summarized his conclusions. They indicate a reconciliation between the long contending views regarding the etiology of rickets. There can no longer be any doubt that dietary factors may assume a determining rôle; but it is equally evident that such environmental conditions as are represented by lack of sunlight outdoors may lead to imperfections in the metabolism of the bones even when the food supply is seemingly satisfactory. The fact that diet can exert a determining influence for or against the development of rickets in human beings does not furnish conclusive proof that diet always does exhibit this potency. It has been stated by Park[1] that, in the great majority of instances, variations in the calcium and phosphorus and in the reaction of the diets fall within limits which, according to present standards, must be regarded as normal. The point that stands out with great clearness in the study of the diets of children suffering from rickets is that no single fault can be found which is common to all. The defects appear to be of various kinds and of such nature as rather to predispose to the development of rickets than actually to cause its development. It is true also that the diets on which some children develop rickets seem to be well constituted and do not cause rickets in others. Of course, one must bear in mind that, after all, our knowledge of the relationship of different food substances to the organism is far from complete. There may be as yet unrecognized deficiencies common to the diets of rachitic persons.

The uncertainty that still remains makes it necessary to consider without prejudice any hypothesis that may help to clarify the situation. The possible interference of bacteria so as to facilitate the development of skeletal defects has occasionally been referred to. Thus, as the Glasgow school[2] has pointed out, the association of rickets with unhygienic surroundings, and its familial incidence, as well as its mode of onset, progress and recovery, have suggested the possibility

1. Park, E. A.: The Etiology of Rickets, Physiol. Rev. 3:106 (Jan.) 1923.
2. Paton, D. N., and Watson, A.: The Aetiology of Rickets: An Experimental Investigation, Part II, Brit. J. Exper. Path. 4:177 (Aug.) 1923.

of its being primarily of microbial origin. It is not necessary, they add, to assume that the infection is a specific one. It might be of the nature of the infection of water, such as McCarrison believes to be associated with the development of goiter. It is even possible that a change in the intestinal flora might alter the reaction of the intestinal contents, and might thus limit the absorption of calcium and phosphorus. The recurrence of rickets in certain houses has also suggested that they harbored some infectious agent.

An infective process may be established through the blood by transmission from insect carriers or by infection through the alimentary tract. The attempts of Paton and Watson [2] to initiate rickets on this basis have been without success. The addition of feces from cases of infantile rickets to the food of suitable experimental animals was not followed by a development of the disease; nor did injection of blood from cases of active infantile rickets lead to its manifestation.

The Glasgow physiologists frankly admit that, while their experiments give no support to the theory that rickets is an infective disease, they, of course, do not disprove the possibility that a particular condition of the alimentary flora, which might be propagated through fecal infection, may so modify the absorption of calcium and phosphorus as to lead to rachitic changes.

THE SURVIVAL OF TRANSPLANTED ORGANS

The classic investigations of Carrel and Guthrie, reports of which were published in 1905, on methods of suturing blood vessels, furnished a satisfactory technical basis for the surgical transplantation of complex organs that require a high degree of circulatory efficiency for their function. It was thereupon expected that rapid progress would be made in the possible applications of transplantation to the problems presented by damaged or actually destroyed physiologic structures. Testes and ovaries have been transplanted whole and, according to Mitchell,[1] although subsequent reproductive functions have not been possible in mammalian transplants, yet some of the structures in these organs continue to function. They undoubtedly give off into the blood what are called internal secretions. Effects of such products, or hormones, coming from transplanted organs, have been noted in the form of altered secondary sex characters, growth of hair, changed sex behavior and the like; also in effects on metabolism and general bodily appearance.

Nevertheless, it has in general been found extremely difficult to transplant the tissues of one animal into another animal, even of the same species. The transplanted tissue usually disappears sooner or later, although, if previously killed by formaldehyd, it seems capable of serving as a support for growth of new tissue on the part of the host. This fact, Bayliss [2] has argued, points to an extraordinary complexity of some kind or other on the part of the tissue protoplasm. The failure of thyroid transplants to grow indicates, for example, that the gland of one animal is distinguished from that of another animal even of the same species. This has presented a serious obstacle to greater advances in the transfer of functional tissues of certain sorts from one individual to another.

In their earliest work, Carrel and Guthrie transplanted the kidneys of a male into a female dog by vascular anastomosis, and then removed the kidneys of the female. The transplants secreted urine for a time. In studies of this type, however, prolonged success was not attained. In the past the failures have been attributed largely to external conditions, such as thrombosis of the blood supply, obstruction to the ureter and infection. Recent investigations of the subject at the Mayo Foundation by Williamson [3] make it seem unlikely that these are the sole factors concerned. He has observed in animals that autogenous kidney transplants will maintain life for weeks in a virtually normal manner after the removal of the remaining normal kidney. The failure of the autogenous transplant seems to be due to atresia of the ureter, hydronephrosis and infection. The homogenous kidney transplant functions as does the autogenous one for a limited time, but this function continues for only a few days. Williamson therefore argues that mechanical defects in the operation, although important, cannot be considered as the primary cause of failure in the homogenous kidney transplant. Some fundamental biologic principle, as yet unidentified, must lie at the basis of the difference in the survival function of an animal's own transplanted tissues in contrast with cell masses derived from a healthy donor of the same species. The discovery of the cause of such incompatibilities between the tissues of different individuals, like those incompatibilities between blood specimens in transfusion, would mark a great step in advance.

DRUGS AND BASAL METABOLISM

The estimation of basal metabolism as an index of physiologic conditions has become, within a comparatively brief period, one of the seemingly fruitful diagnostic helps in the clinic. Clinical calorimetry by the indirect method of respiration apparatus is no longer confined to a few institutes for research or special laboratories devoted primarily to the study of metabolism. Estimations of heat production in man are being conducted in hospitals, and literally at the bedside in dozens of places under conditions that may not always be beyond reproach from the expert in calorimetry. The limitations of the somewhat difficult tech-

1. Mitchell, P. H.: General Physiology, New York, McGraw-Hill Company, 1923.

2. Bayliss, W. M.: Principles of General Physiology, London, Longmans, Green & Co., 1915.

3. Williamson, C. S.: Some Observations on the Length of Survival and Functions of Homogenous Kidney Transplants, J. Urol. **10**: 275 (Oct.) 1923.

nic, the necessity of securing proper conditions and cooperation on the part of the patient, and the possibilities of unsuspected physiologic influences that may lead to unexpected variations in the observations of oxygen consumption or carbon dioxid output have probably not been adequately realized in all cases. As often happens when some novelty gives promise of useful aid to the practitioner, the desire to profit by the new device has exceeded the patience required to learn its real uses and the limitations of its usefulness.

That the basal metabolism represents the energy exchange of the person at rest and without food, that is, in the postabsorptive stage, is now well understood. It is no longer necessary to dwell on the fact that the mere administration of food, even under conditions of complete bodily repose, is attended with a "speeding up" of the physiologic combustions. Foods have a "specific dynamic action"—to use the technical expression—of considerable magnitude. A resting patient, untutored in the purposes and needs of calorimetry, may be a restless subject and thereby vitiate the efforts of the scientific observer. The latter has therefore learned, by bitter experience, that it is essential to secure the cooperation of his subject.

By virtue of being in the category of the sick or being potential candidates for the physician's services, patients are liable, if not likely, to be the recipients of a great variety of drugs at about the time when they are scheduled for the estimation of basal metabolism. What about the effects of the usual "range" of popular remedies—the analgesics, soporifics, carminatives, laxatives, antispasmodics, alteratives? The calorigenic action of the active substances of the thyroid and suprarenal glands is clearly established, and according to Aub and Taylor,[1] no other endocrine gland substance has been shown to exert a similar action. Boothby and Rowntree [2] have made a study of the possible effects of twenty-five commonly used drugs in the Metabolism Laboratory of the Mayo Clinic. They included such familiar examples as acetylsalicylic acid (aspirin), barbital, caffein, cinchophen, codein, iodids, morphin, radium water, strychnin and sulphonmethane. When these, or numerous others, are administered in single, moderate doses they do not demonstrably influence the basal metabolic rate. Boothby and Rowntree point out that, in the clinical estimation of the basal metabolic rate, neither epinephrin nor insulin should be given within several hours preceding the test. Although thyroxin does not cause an immediate rise in the metabolic rate, no test made subsequent to its administration, at least for a period of several weeks, in a patient suspected of a metabolism below normal, can be assumed to represent the lowest metabolism of that individual. The administration of iodids does not affect the metabolism of a normal individual, but may convert a case of adenomatous goiter without hyperthyroidism into one with hyperthyroidism; and the increased metabolism, when so produced, represents the intensity of the new syndrome. Aside from exceptions indicated here, it is unlikely, according to Boothby and Rowntree, that any of the ordinary drugs in doses used in clinical work will invalidate basal metabolic rate determinations.

1. Aub, J. C., and Taylor, M.: Effect of Body Tissue Other Than Thyroid on the Basal Metabolic Rate, Endocrinology **6**: 255 (March) 1922.
2. Boothby, W. M., and Rowntree, L. G.: Drugs and Basal Metabolism, J. Pharmacol. & Exper. Therap. **22**: 89 (Sept.) 1923.

PERNICIOUS VOMITING OF PREGNANCY

Attempts to discover the cause of the nausea and vomiting in pregnancy, and particularly the etiology of so-called pernicious vomiting, have in general led to a negative rather than a positive position. The question always recurs as to whether the symptoms originate in a neurosis, intestinal intoxication, or some perversion of the metabolism. An added importance is given to the subject if one agrees with Wells [1] that the condition is inseparably associated with eclampsia and the nonconvulsive toxemias of pregnancy, there being transitional and borderline cases of all sorts. Examination of the urine in cases of pernicious vomiting led a number of investigators to conclude that the malady presents evidences of either suboxidation or insufficient deamination of products of metabolism. These views were put forth at a time when the hypothesis of deficient oxidation seemed far more plausible than it does now. In an excellent study of the subject published in 1910, Underhill and Rand [2] at Yale University pointed out that the composition of the urine in pernicious vomiting is strikingly similar to that which obtains in the urine eliminated during inanition. In both instances the characteristic perversions are changed relations in the excretions of urea and ammonia, and at times in the output of creatinin and creatin.

It was suggested that the changes observed are induced by the accompanying inanition. Evidence tending to substantiate this view was furnished by the observation that the perverted urinary nitrogen relations rapidly resume the normal on administration of food, without necessarily exerting any influence on the pathologic state of the patient. In pernicious vomiting of pregnancy, in which inanition is a significant factor, the administration of energy-yielding foodstuffs was of greater value than the giving of foods rich in nitrogen. The body is capable of furnishing the small quantity of nitrogen requisite for nutritional rhythm, but, in the absence of carbohydrate, energy-yielding substances present in the body are difficult of utilization. Carbohydrate supply is apparently the factor determining the relative output of urea and ammonia, since in pernicious vomiting of pregnancy, as in inanition, the administration of carbohydrates by mouth or

1. Wells, H. G.: Chemical Pathology, Philadelphia, W. B. Saunders Company, 1920, p. 546.
2. Underhill, F. P., and Rand, R. F.: The Peculiarities of Nitrogenous Metabolism in Pernicious Vomiting of Pregnancy, Arch. Int. Med. **5**: 61 (Jan.) 1910.

by rectal enemas is followed by a distinct tendency toward a resumption of the normal elimination of these compounds.

The theory that the nausea and vomiting of pregnancy are based on an essential carbohydrate disturbance has received new support in recent years, notably from Harding and his collaborators in Canada. Ketonuria, for example, has been found associated with various types of periodic vomiting; and ketosis is today recognized as a concomitant of the disordered metabolism of fats when there is a shortage of carbohydrate. In the cases observed by them at the Toronto General Hospital, Harding and Potter [3] noted that the excretion of "acetone" tends to parallel the clinical condition. The extent of tissue destruction is governed by the demand for further supplies of carbohydrate. In other words, lack of carbohydrate, due perhaps to some disturbance in the maternal liver as the primary etiologic factor, is responsible for perverted fat catabolism and likewise for the destruction of the protein. The latter takes place to provide the antiketogenic sugar to the disordered organism. As Harding and Potter point out anew, the results exhibited by the metabolic upset are similar to those observed in some cases of starvation; but in pregnancy the demand for carbohydrate, and consequently the disturbance following the lack of it, are more intense than in starvation. With so many facts now clearly established, attempts at relief through carbohydrate administration should receive more attention than has heretofore been accorded to the subject. The organism can "tide over" the lack of protein for very considerable periods by drafts on its accumulated reserve of nitrogenous tissues. A shortage of readily available carbohydrate may become much more acute; and there are ways of relief even when, for some reason, the oral path is excluded.

Current Comment

INTRACRANIAL BIRTH HEMORRHAGES

In the domains of medical and surgical endeavor there are often fields of interest that would tend to overlap if they were not sharply demarcated by the traditions of the specialists who cultivate them. Thus, one learns of occasional conflicts of view between the surgeon and the physician, each of whom surveys the situation under examination from the angle of his customary vocation. The master of an operative technic naturally thinks primarily of the relief of an objectionable condition, whereas his medical colleague may regard it preeminently with respect to prophylaxis. An illustration of such relative difference of interest in a problem has lately been pointed out by Ehrenfest [4] of the Washington University Medical School, St. Louis, in connection with the causation of intracranial hemorrhages of the new-born. Obstetricians, he remarks, naturally have the better opportunity of observing and studying the immediate, and especially the mechanical, causes of such injuries. They apparently have succeeded in revealing the exact mechanism in the origin of most of the more common types of cranial and intracranial lesions sustained by the child in the course of birth. Pediatricians, who, with the rarest exceptions, see these patients only later, have made valuable contributions, chiefly in regard to symptomatology. They have discovered the evident etiologic relation of intracephalic birth hemorrhages to a reduced coagulability of the blood, rather frequently ascertainable in the newborn. Obviously, a correct understanding of the extent to which intracranial birth hemorrhages are traumatic in origin would be an invaluable guide to the obstetrician. There seems to be a widespread impression, if not actually a preponderant conviction, that the causation of the conditions here under discussion often involves factors having no direct relation whatever to labor. The explanations may be summarized under the vague designation of hemorrhagic disease beginning in intra-uterine life.[5] The fundamental fact is the possibility of asphyxiation in infants experiencing severe birth hemorrhage. Ehrenfest believes that undue emphasis is being placed on the hemorrhagic diathesis, and that the widespread significance of both artificial mechanical and physiologic trauma incident to birth is being overlooked. The more carefully postmortem examinations are made, the more frequently are evidences of unsuspected damage to the meninges and other structures adduced. The exact determination of the mechanical factors that may effect such traumatization properly attains a large importance in the development of obstetrics under conditions in which attention has been directed primarily, if not exclusively, to the possibilities of toxemia or blood anomalies in the maternal organism.

THE ORIGIN OF CERTAIN CYSTADENOMAS OF THE OVARY

Sampson [6] holds that the small, superficial, blood-containing, so-called "chocolate" cysts of the ovaries develop by the growth of desquamated epithelium from the endometrium or uterine tube that has been implanted on the surface of the ovary, adjacent to the fimbriated end of the tube. This origin is indicated because the cysts are lined with ciliated columnar epithelium which is surrounded by stroma like that around glands of the endometrium; because during the menstrual period hemorrhage occurs into the lumen of the cysts and surrounding stroma, often in sufficient amounts to cause rupture; because similar cysts are often present on the mesosalpinx and culdesac in positions that suggest growth of implanted epithelium from the contents of a ruptured cyst; and, finally, because the cysts are common only during the age when greater demands are made on the generative organs; that is,

3. Harding, V. J., and Potter, C. T.: The Excretion of "Acetone" and Nitrogen in Nausea and Vomiting of Pregnancy, Brit. J. Exper. Path. **4**: 105 (June) 1923.

4. Ehrenfest, H.: The Causation of Intracranial Hemorrhages in the New-Born, Am. J. Dis. Child. **26**: 503 (Dec.) 1923.

5. Munro, Donald, and Eustis, R. S.: Diagnosis and Treatment of Intracranial Hemorrhage in the New-Born, Am. J. Dis. Child. **24**: 273 (Oct.) 1922.

6. Sampson, J. A.: The Life History of Ovarian Hematomas of Endometrial Tube, Am. J. Obst. & Gynec. **4**: 3 (Nov.) 1922.

between 30 and the menopause. The latter fact opposes the frequently advanced theory that they are adenomas which develop from embryonic rests of epithelium from the müllerian duct. Jacobson,[7] in experiments on rabbits, shows that endometrial tissue curetted from the cornu of the uterus and transplanted to adjacent pelvic viscera in the same animal may grow into adenoma-like formations and multilocular cysts which resemble ovarian cystadenoma. Growth could be produced more readily by embedding curettings in an incision of the adipose tissue of the mesosalpinx, but were also produced in the mesolsalpinx, mesometrium and culdesac by scattering minute pieces of endometrium in the abdominal cavity. Growths were rarely obtained on abdominal wall, mesentery or viscera other than pelvic, but Sampson quotes Mallory as having observed two specimens of adenoma of endometrial type in the scar of an abdominal incision, after cesarean section. In later experiments, Jacobson[8] observed a small amount of blood in a few of the transplantations in two rabbits, which were in heat. In a pregnant animal, a papillary cystadenoma with some of the characteristics of a malignant growth was produced. These experiments seem to confirm Sampson's belief that certain cystadenomas of the ovary may arise from ectopic endometrial tissue.

PRESIDENT'S DISAPPROVAL OF FEDERAL SUBSIDIES TO STATE GOVERNMENTS

President Coolidge has taken a positive stand against expansion of federal subsidies to state governments. His policy was outlined in the address made by him to executive heads of the government departments, held at Continental Hall, January 22. While the President did not specifically mention the particular federal government activities in which the states are beneficiaries from federal appropriations, it is evident that he had in mind the appropriations under the Sheppard-Towner Infant and Maternity Law, the federal Vocational Training Law, and similar acts which turn over federal money to the states, provided the states appropriate similar sums from state funds. To quote:

> I take this occasion to state that I have given much thought to the question of federal subsidies to state governments. The federal appropriations for such subsidies cover a wide field. They afford ample precedent for unlimited expansion. I say to you, however, that the financial program of the chief executive does not contemplate expansion of these subsidies. My policy in this matter is not predicated alone on the drain which these subsidies make on the national treasury. This, of itself, is sufficient cause for concern. But I am fearful that this broadening of the field of government activities is detrimental both to the federal government and to the state governments. Efficiency of federal operations is impaired as their scope is unduly enlarged. Efficiency of the state governments is impaired as they relinquish and turn over to the federal government responsibilities which are rightfully theirs.

The position taken by President Coolidge is sound economically and sociologically; it is that for which the medical profession and THE JOURNAL have contended.

7. Jacobson, V. C.: The Autotransplantation of Endometrial Tissue in the Rabbit, Arch. Surg. 5: 281 (Nov.) 1922.
8. Jacobson, V. C.: Further Studies in Autotransplantation of Endometrial Tissue in the Rabbit, Am. J. Obst. & Gynec. 6: 3 (Sept.) 1923.

Association News

THE CHICAGO SESSION

Announcement by Committee on Hotels

The Committee on Hotels of the Local Committee of Arrangements has arranged with the Hotel Men's Association in Chicago for the provision of satisfactory accommodations for all who expect to attend the Seventy-Fifth Annual Session of the American Medical Association, June 9-13. This committee has the active cooperation of the Bureau of Conventions of the Chicago Association of Commerce. Members of the Association who expect to attend the session should write direct to the hotels of their choice for reservations. If the preferred hotel is unable to provide accommodations as desired, the request will be turned over to the Committee on Hotels of the Local Committee of Arrangements, and accommodations at another hotel will be secured. Duplicate reservations should not be made. In the initial request for reservations, the date of arrival in Chicago, as well as the length of time the applicant expects to remain and the number and kind of rooms desired, should be clearly stated. It is also desirable that second and third choice of hotels be stated. The Committee on Hotels will make every effort to secure accommodations in keeping with expressions of preference. Dr. Frank R. Morton is chairman of the Committee on Hotels of the Local Committee of Arrangements. If satisfactory arrangements for hotel reservations cannot be made through communications addressed directly to hotels, the Committee on Hotels may be addressed at the office of the Local Committee of Arrangements, Room 1522, 25 East Washington Street, Chicago.

A complete list of Chicago's leading hotels and rates to be charged will appear in THE JOURNAL in the near future.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Loving Cup for Dr. Crane.—Dr. Martin C. Crane, Los Angeles, ship's doctor of the *Tjisalak*, has been presented with a loving cup from 853 survivors of the Yokohama earthquake. Dr. Crane, it is said, went ashore under hazardous circumstances, established the only first aid station on the waterfront and worked all night by the light of a burning building with no other equipment than his first aid kit.

Failed to Report Smallpox.—Dr. Howard J. House, Los Angeles, according to reports, was fined $600 with an alternative of sixty days in the county jail, January 15, following his conviction in Judge Wallace's court on a charge of violating the county ordinance requiring physicians to report all cases of infectious disease to the health department. It was alleged that Dr. House failed to report a case of smallpox.

Hospital News.—A hospital building for St. Joseph's Hospital, San Diego, which will contain 200 beds, will soon be erected. The present site on University Avenue will be sold to raise part of the funds.——By decision of Judge Shaw, field, Dec. 29, 1923, South Pasadena was within its rights in refusing to permit Dr. Ross Moore to establish a sanatorium for "nervous patients" in that city. Dr. Moore sought an injunction to restrain the city from interfering with his plan, but was denied.——The Driver Hospital Association has been organized to erect a $2,000,000 hospital in Los Angeles, having a capacity of 400 beds at Second Street and Vermont Avenue. Construction will start in the spring.——Three hundred acres of land has been purchased in San Mateo County, near Redwood City, on which the San Francisco Tuberculosis Preventorium will be erected. This closes a three year search for a suitable site.——Dr. Lewis J. Belknap has taken over the Columbia Hospital, San Jose, which will be called the Garden

City Sanitarium. The buildings will be moved to Santa Clara Street and enlarged.——A permit was granted, January 7, for the erection of a sanatorium on Clinton Avenue, Alameda. The structure will be four stories high and accommodate 100 patients. The articles of incorporation of the Alameda Sanatorium provide for an authorized capital of $1,000,000, and the Misses Creedon, owners of the present Alameda Sanatorium, will have charge of the new institution.

COLORADO

Medical Editor Appointed.—Dr. Charles S. Bluemel, Denver, assumed the management of *Colorado Medicine* (official organ of the Colorado State Medical Society), January 1, succeeding Dr. Frank B. Stephenson, who has been editor for the last five years. Dr. Stephenson is still secretary of the state society.

The Vola-Practice Institute.—It is reported a warrant has been issued for the arrest of William P. Buck, in San Francisco, for issuing a false diploma of the Vola-Practice Institute, a chiropractic school at Denver. The complainant is Mrs. Young of San Francisco, who paid Buck $200 for the diploma. It is said that the Vola-Practice Institute was incorporated in 1908 by R. C. Hunt, C. R. Wooley and William P. Buck (Hunt and Buck were chiropractors), and that it has been defunct since Sept. 3, 1913.

CONNECTICUT

Personal.—Dr. William H. Coon has been reappointed health officer of Bridgeport for a four year term.

Change of Editors.—Prof. James A. Angell, president of Yale University, New Haven, has resigned the editorship of the *Psychological Review* publications. He is succeeded by Dr. Shepherd Ivory Franz of St. Elizabeth's Hospital, Washington, D. C., who relinquishes the editorship of the *Psychological Bulletin* to Prof. Samuel W. Fernberger of the University of Pennsylvania, Philadelphia.

Diploma Inquiry Continued.—During the two weeks' recess of the special grand jury, Dr. George C. Blumer, former dean of Yale University School of Medicine, New Haven, and Harold B. Beardsley, secretary of the jury, went to Washington, Boston, St. Louis and Kansas City on business which concerns this investigation. The name of Dr. Sam Kaplan, St. Louis, who, it is reported, was wanted by the Hartford grand jury, has cropped up again in the federal government's investigation of Oriental University, Washington, D. C. U. S. District Attorney McCall obtained a file of Kaplan's correspondence with "Dr." Holler, owner of Oriental University, which was taken in a raid by government agents last week. The file shows that Kaplan was constantly busy in Missouri and Illinois on behalf of the Oriental University. The raid also established Dr. Ralph A. Voigt's connection with Holler's "university." Dr. Voigt, "master mind" of the medical "diploma mills," corresponded with Holler, and his official certificate as the Kansas City representative of the "university" was obtained in the raid. Postal authorities trailing a "doctor" who is wanted in Connecticut, obtained correspondence which bears on the case. In connection with pharmacy "diploma mills," Dr. Augustus S. Downing, director of professional education of New York State, has announced that 200 druggists of New York, holding Lincoln-Jefferson University (Chicago) degrees, have been notified they will be prosecuted if they use these degrees. It is reported, following an inspection by the Illinois State Department of Education and Registration, the Lincoln-Jefferson, the National University of Sciences and the Peerless College of Chiropractic, all of Chicago, have suspended operations and that the heads are missing. "Dr." Irving I. Jacobs, the dean of the Jefferson-Lincoln University, also conducts the Connecticut School of Pharmacy, New Haven.

ILLINOIS

Clinics O. K.—An investigation has been made of all social hygiene clinics in the state which draw funds from the state health department for support of the physician in charge. The report indicates that all of these clinics are complying with the rule which requires that patients who are able to pay shall be referred for treatment to physicians in private practice.

Cancer Campaign.—A cancer campaign, under the direction of the American Society for the Control of Cancer, will open in Illinois and neighboring states, February 15, and continue for a month. Local health departments, medical societies, public health and other organizations are urged to participate. Literature may be secured in limited quantities from the department or from the society at 370 Seventh Avenue, New York City.

Water Purification Conference.—The state department of public health, in cooperation with the state university, will hold a conference for the benefit of operators of water purification plants. It will be the first of its kind in Illinois, and will take place at Urbana, probably about the middle of March. Interest in the conference is reflected in the percentage of favorable replies to invitations extended to all operators in the state. If any operator has failed to receive an invitation he is urged to come. Urbana was chosen because of opportunities to inspect a plant that demonstrates subjects to be discussed at the conference.

Chicago

Society News.—The Chicago Association for the Prevention and Relief of Heart Disease will hold its first annual meeting, February 8, under the presidency of Dr. James B. Herrick. Dr. Haven Emerson, president of the New York Association for the Prevention and Relief of Heart Disease, will give an address.——"Medicine and the Press" was the subject of discussion at the meeting of the North Side Branch, Chicago Medical Society, January 31, at which the trustees of the American Medical Association were guests. Among the speakers were Dr. Olin West, secretary of the American Medical Association; Dr. Morris Fishbein, assistant to the editor, THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION; Henry J. Smith, news editor, Chicago *Daily News;* Ralph R. Ferguson, editor, *Bulletin of the Chicago Medical Society,* and H. F. Harrington, director, Medical School of Journalism of Northwestern University, Chicago.——Dr. F. E. B. Foley, St. Paul, addressed the Chicago Urological Society, January 24, on "Anomalous Renal Vessels Resulting in Hydronephrosis."——At the annual meeting of the Chicago Ophthalmological Society, January 21, Dr. J. Brown Loring was elected president; Dr. Charles G. Darling, vice president, and Dr. Charles P. Small, secretary-treasurer.——Dr. Carl B. Davis, professor of surgery, Rush Medical College, addressed the Tri-County Medical Society at Wellington, Kan., January 31, on "Surgery of the Intestinal Tract."——At the annual meeting of the Chicago Society of Anesthetists, January 22, the following officers were elected for the ensuing year: president, Dr. Frances E. Haines; vice presidents, Drs. J. DeBoar and Mary M. Lyons, and secretary-treasurer, Dr. Francis L. Lederer.——At an open meeting of the Chicago Society of Internal Medicine, January 28, Dr. Alfred F. Hess, New York City, spoke on "Newer Aspects of the Rickets Problem," and Dr. Philip A. Daly on "The Heart in Pregnancy."

INDIANA

Society News.—At the seventh annual meeting of the Indiana Academy of Ophthalmology and Oto-Laryngology in Indianapolis, January 17, Dr. Bernard J. Larkin, Indianapolis, was elected president; Drs. Fred McK. Ruby, Union City, and Daniel S. Adams, Indianapolis, vice presidents, and Dr. Eldridge M. Shanklin, Hammond, secretary-treasurer. Dr. Samuel E. Earp, president of the state medical association, gave an address.

Indianapolis Medical Society.—At the annual meeting of the society, January 8, Dr. John F. Barnhill, was elected president; Drs. Edward A. Brown and J. Frank Robertson, vice presidents, and Dr. William A. Doeppers was reelected secretary-treasurer. The society will file articles of incorporation with the secretary of state to change the name of the society to the "Indianapolis Medical Society, the Medical Society of Marion County," in order to facilitate the purchase of a building for permanent headquarters for the organization.

IOWA

Child Welfare Plan.—A three-year investigation to better the rural child in Iowa will be conducted by the state child welfare research station at the University of Iowa with the financial aid of the Laura Spellman Rockefeller Memorial Fund. Dr. Bird T. Baldwin is director of the station.

Society News.—Dr. John F. Benning, Yorktown, was elected president of the Page County Medical Society for another year at the annual meeting in Clarinda, Dec. 13, 1923, and Dr. J. Frank Aldrich of Shenandoah was reelected secretary.——At the annual meeting of the Woodbury County Medical

Association in Sioux City, Dec. 12, 1923, Dr. John A. Thomson was elected president and Dr. Archibald F. O'Donoghue, secretary.——At the annual meeting of the Sioux Valley Eye and Ear Academy, held, January 22, at Sioux City, the following officers were elected for the ensuing year: president, Dr. Samuel A. Keller, Sioux Falls, S. D.; vice president, Dr. Charles H. Fox, Kearney, Neb., and secretary-treasurer, Frederick H. Roost, Sioux City.

KENTUCKY

Personal.—Dr. Jacob N. Bailey has been elected mayor of Paducah.

Physicians Fined.—According to reports, Dr. William H. Martin, Carlisle, was fined $1,000 in the federal court at Lexington, January 15, on a charge of violating the Harrison Narcotic Law.——Dr. Thomas G. Cook, Nicholasville, was fined $1,000 in the same court, January 16, on the same charge, it is stated.

LOUISIANA

Interest in Medical History.—Members of the junior medical class of Tulane University, New Orleans, have formed the Tulane Undergraduate Association for the purpose of creating interest in historical medicine among advanced students.

New Branch Quarantine Station.—A new branch quarantine station was opened, January 1, on the west bank of the Mississippi River, directly across from Violet. All ships except those coming from "suspected" or "infected" ports will be permitted to proceed directly to Violet which is 12 miles below New Orleans instead of going to the federal quarantine station, 90 miles down the river.

Personal.—Dr. A. W. Brennan has been appointed health director of Tanhipahoa Parish.——Dr. G. M. Brandau is now in charge of the Beauregard Parish Unit.——Dr. Leon J. Menville, chairman of the house of delegates of the state medical society and ex-president of the Louisiana Radiological Society, was elected vice president of the Radiological Society of North America at the meeting in Rochester, Minn., Dec. 3-8, 1923.

MAINE

New Appointments.—Dr. Allen N. Small, Freedom, has been appointed medical examiner of Waldo County with Dr. Orris S. Vickery, Belfast.——Dr. Leo F. Hall has been reappointed health officer of Auburn.——Dr. Foster C. Small, Belfast, has been appointed coroner of Waldo County.

MARYLAND

Personal.—Dr. Thomas Salmon, Columbia University, New York City, gave an illustrated lecture at the University of Maryland, January 17, under the auspices of the department for medical extension. His topic was "Psychiatric Problems of General Practice."——Dr. John M. Nicklas, medical consultant of the Maryland Tuberculosis Association, has been appointed clinical aid in the bureau of communicable diseases of the state department of health.——Dr. Matthias Nicoll, Jr., commissioner of health of New York, lectured on "Public Health as a Career" at the DeLamar lecture on hygiene, January 28, at the School of Hygiene and Public Health, Johns Hopkins University.——Dr. George R. Cousar sailed, January 31, for the Belgian Congo, Africa, where he will take up medical missionary work. Dr. Cousar will be stationed at Luebo.

MASSACHUSETTS

Sedgwick Memorial Lecture.—The second William Thompson Sedgwick Memorial lecture was given, January 25, at Huntington Hall, Boston, by Dr. William H. Welch, director of the school of hygiene and public health of Johns Hopkins University, Baltimore, on "Foundations of Public Health."

Harvard Lecture Program.—Dr. Simeon B. Wolbach, chairman of the committee on public lectures of the Medical School of Harvard University, Boston, announces the lecture program for this winter as follows:

February 3, Dr. William H. Robey, "What Can We Do to Prevent Heart Failure?"
February 10, Dr. James H. Means, "On the Various Types of Thyroid Disease and Their Significance to the Individual and to the Community."
February 17, Dr. William H. Geer, "The Relations of Exercise to Health."
February 24, Dr. Charles J. White, "The Contagious Diseases of the Skin and Possible Measures to Avoid Them."
March 2, Charles A. Brackett, D.D.S., "Pain and Anesthetics."

Other lectures will be announced later.

MICHIGAN

Hospital News.—Edsel Ford announced, January 15, a $1,500,000 enlargement program for the Henry Ford Hospital, Detroit, involving immediate construction of a nurses' home and education building, and a change in policy by which the institution will train its own nurses. Excavation work has already been started and completion of the work is scheduled for September of this year. The nurses' home and training school, which will be six stories high, will be named the Clara Ford Nurses' Home, in honor of the wife of Henry Ford. Both buildings will be of the Georgian period, conforming to the main hospital buildings which were opened in 1914.

MISSISSIPPI

Dr. Leathers Appointed National Examiner.—Dr. Waller S. Leathers, Jackson, executive officer of the Mississippi State Board of Health, has been appointed a member of the National Board of Medical Examiners.

MISSOURI

Physician Given Four Years.—According to reports, Dr. Leland L. Short, Purcell, pleaded guilty to violation of the Harrison Narcotic Law, recently, and has been sentenced to four years in the federal penitentiary at Leavenworth, Kan.

Two Diploma Mill Men Arrested.—Drs. Ralph A. Voigt and Date R. Alexander, alleged leaders of the nation wide "diploma mill" business, were arrested, January 15, in Kansas City. These men, with Dr. Robert Adcox, St. Louis, were indicted by the grand jury, January 12, charged with conspiracy against "public health and morals."

Medical Credit Bureau.—A medical credit bureau was recently incorporated under the laws of Missouri in St. Louis with a capital of $110,000. The membership totals 740. The purpose of the bureau is to collect physicians', dentists', druggists' and hospitals' bad debts for fees commensurate with the best service; to render a professional credit rating service, and to lend money to enable patients to pay promptly their medical, dental, drug or hospital bills. Dr. John C. Morfit is president of the board of directors and Dr. Noxon Toomey, secretary.

NEBRASKA

Physician Becomes Missionary.—Dr. Alfred J. Stewart, Mitchell, formerly a city councilor, has accepted a position as medical missionary under the auspices of the Congregational Church, at Shao Wu Mission, China, and will sail at an early date.

NEW JERSEY

Prison Sentence for Physician.—Following conviction on a charge of criminally conspiring to defraud three insurance companies out of approximately $37,000, Dr. Aaron L. Simon, Passaic, physician and lawyer, was sentenced, January 18, to three years in the state prison and fined $1,000 by Judge Delaney, according to reports. Dr. Simon is alleged to have falsified a certificate of health in an insurance company. He has appealed.

Memorial Service for Dr. Kipp.—A commemoration day in appreciation of the work of the late Dr. Charles J. Kipp was held, January 13, at the Newark Eye and Ear Infirmary, of which he was founder. The mayor, Dr. Edward J. Ill, Dr. Frederic J. Hughes, president of the board of managers, State Sanatorium for Tuberculosis, Mount Kipp, and Dr. David C. English, editor of the *Journal of the Medical Society of New Jersey*, gave addresses.

NEW MEXICO

Resolution on Trachoma and Tuberculosis.—A resolution was recently passed by the McKinley County Medical Society to call the attention of the Secretary of the Interior, Dr. Hubert Work, to the feeble efforts now being put forth by the Bureau of Indian Affairs in the control of trachoma and tuberculosis among the Navajo Indians, and to request that more adequate methods be enacted for the relief of these people.

NEW YORK

Personal.—Dr. George S. Amsden, White Plains, will succeed the late Dr. Jesse Montgomery Mosher as attending physician to the Albany (N. Y.) Hospital.——Dr. Whiting S.

Worden, U. S. health officer at Yokohama, Japan, recently reported as having perished in the earthquake, has arrived in Syracuse.——Dr. Edward M. Burns has been appointed to succeed Dr. Frank C. Furlong as medical inspector for the parochial schools of Poughkeepsie.——Dr. James T. Harrington has been appointed vice president of the Poughkeepsie Board of Health.

Hygiene of Maternity and Infancy.—State Health Commissioner Dr. Matthias Nicoll, Jr., at a recent conference with delegates representing seven state-wide women's organizations, stated that present plans include financial aid for maternity and infancy nursing service to communities having high maternal and infant death rates. The department plans the organization throughout the state of Mothers' Health clubs to teach the hygiene of maternity and infancy. It was also announced that a new motion picture film "Well Born" dealing with prenatal hygiene has been purchased and is now available to any community on application.

Medical Tests Peddled.—Charges that regents' questions are being sold to applicants for medical diplomas is the latest development in District Attorney Banton's investigation of quackery in New York. The allegations were laid before him, January 7, by Reed B. Dawson, counsel for the Medical Society of the County of New York, who cited the case of an ex-medical student now working in a drug store, who was offered for $1,000 a copy of the questions which the board of regents would ask at the next examination. It is asserted that a chiropractor on the upper East Side of New York is concerned in the sale of questions and he in turn is acting on behalf of a practicing physician.

State Develops Health Resort.—The conservation commission announces that as a result of ten years' conservation of mineral waters on the state reservation, Saratoga Springs, the state faces a demand for the establishment of a great center. Plans have been formulated which, if approved, will result in building a magnificient bathhouse, and a combined hotel and sanatorium in Geyser Park, in the center of more than a hundred mineral springs and wells. The reservation records show a great increase in the bathing industry; in 1915, 10,350 bath treatments were given, and in 1923, 84,000. The state now manages three bathhouses for hydrotherapeutic treatment, with a combined capacity of 1,700 treatments a day.

New York City

Harvey Society Lecture.—Dr. Evarts A. Graham, professor of surgery, Washington University School of Medicine, St. Louis, will deliver the fifth Harvey Society Lecture at the New York Academy of Medicine, February 9. His subject will be "Alterations of Intrapleural Pressure and Their Significance."

Trade School for Patients with Heart Disease.—The board of education, in cooperation with the Association for the Prevention and Relief of Heart Disease and the Children's Aid Society, announces the opening of a special trade class for patients with heart disease. The routine and the instruction will be adapted to the needs of students under the direction of a specialist in heart disease.

Liquor Sales to Hospitals Stopped.—William Hayward, United States attorney, announced, January 17, that the government has been forced to discontinue furnishing whisky for medicinal purposes to the New York hospitals because the liquor now obtained in seizures from the "rum" fleet, the Canadian border and other sources is "not fit for human consumption." Since the advent of national prohibition, the government has sold whisky to hospitals from selected lots of seized liquor at the nominal price of $1 to $4 per gallon, Colonel Hayward stated.

Plan Brooklyn Medical Center.—Dr. James C. Egbert, president of the Medical School of the Long Island Hospital, and Bird S. Coler, commissioner of public welfare, plan a scholastic amalgamation of the public hospitals of the borough with the Long Island College Hospital, and the erection of a $200,000 laboratory at Kings County Hospital. As the first step in bringing together the medical forces of the borough, four officers of the Kings County Medical Society, Dr. Charles A. Gordon, Dr. Frank Jennings, Dr. John Jennings and Dr. Charles E. Scofield, have been placed on the board of regents of the Long Island College Hospital.

Health Committee Formed.—A representative group of Brooklyn laymen and physicians at a dinner, January 11, organized the Brooklyn Health Examination Committee to urge the public to have annual health examinations. Thomas V. Gould was elected chairman of the committee; Dr. Charles S. Prest, secretary, and Dr. Herman T. Peck, Dr. Charles A. Gordon, president of the Medical Society of the County of Kings, and Raymond Gunnison of the Brooklyn *Eagle*, were named as a membership committee. Among other things the committee plans to send out four-minute speakers, distribute literature in all industrial and other groups and exhibit posters, car placards and motion pictures. "Working for Dear Life," a picture recently released, sets forth the value of periodic health examinations.

Personal.—Dr. Louis Tulipan has been appointed consulting dermatologist to the child welfare board of New York City.——Drs. Alfred Kahn and I. Glassman were elected president and secretary, respectively, of the Yorkville Medical Society, Dec. 17, 1923.——John H. Finley, associate editor of the New York *Times*, has been elected president of the American Child Welfare Association.——Dr. Helen F. Gibson, New York City, has gone to India where she plans to become a medical missionary.——Mr. Edward M. Van Cleve has retired from the position of managing director of the National Committee for the Prevention of Blindness. Mr. Lewis H. Carris will succeed him.——Dr. John F. Fitzgerald, general medical superintendent of the department of public welfare, who has served for thirty-seven years as a medical expert for the state and city, has been granted retirement by the board of estimate.——Dr. William J. Robinson was reelected president for the fourteenth successive year of the medical board of the Bronx Hospital at the annual meeting.

OHIO

County Society Elections.—At the annual meeting of the Hancock County Medical Society in McComb, recently, Dr. John M. Firmin, Findlay, was elected president; Dr. Allen A. Tombaugh, McComb, vice president, and Dr. Earl J. Thomas, secretary-treasurer.——Dr. Benjamin R. McClellan, Xenia, was elected president of the Greene County Medical Society at the annual meeting, Dec. 6, 1923; Dr. Frank W. Ogan, Jamestown, was elected vice president and Dr. Robert Reyburn McClellan, Xenia, secretary.——Drs. George P. Riebel and Paul R. Ensign were elected president and secretary-treasurer, respectively, of the Ashland County Medical Society, recently.——Champaign County Medical Society elected Dr. Ezias R. Earle president for the ensuing year; Dr. Nelson M. Rhodes, vice president, and Dr. Jacob F. Stultz, secretary.——Dr. Herbert W. Kendell, Covington, was recently elected president of the Miami Medical Association and Dr. Joseph B. Barker, Piqua, secretary.

Public Health Notes.—A campaign to protect the traveling public against polluted water will be inaugurated by the state health department. Water in roadside wells, at schoolhouses and other places where tourists drink will be examined and that which meets the standard will be labeled with a "seal of safety;" that found polluted which may be purified will be labeled unsafe until corrections are made, and that found unsafe and impossible of purification will be closed.——After a two day survey of Jackson and Vinton counties, the state health director declared that failure of those counties to establish health departments has resulted in the death rate being nearly twice as high as in adjoining counties, especially as regards tuberculosis and diphtheria.——At the conference in Columbus of health officers from all parts of the country, it was shown that Ohio leads in health work. Of the eighty-eight counties forty-two have full-time health commissioners and forty-four part-time health officers. Besides the organization of the various health departments in the counties and cities, Ohio has more than 800 public health nurses. In 1911, only nine cities had nursing centers. In 1923, there were seventy-nine city nursing centers and sixty rural nursing centers.

OKLAHOMA

Hygeia.—The Payne County Medical Society is supplying the city libraries of Cushing and Stillwater with *Hygeia* for 1924.

Health Commissioner Named.—Dr. Carl Puckett, Pryor, has been appointed state health commissioner to succeed Dr. Albert E. Davenport, whose resignation became effective, Dec. 1, 1923, following his indictment by the Oklahoma County grand jury (THE JOURNAL, Dec. 15, 1923, p. 2041).

Hospital News.—The Cushing Municipal Hospital is now operating as an open hospital to all reputable physicians and surgeons.——The Municipal Hospital, Muskogee, erected at a cost of $130,000, was recently opened. It has accommodations for sixty patients.——The Oklahoma State Baptist Hospital, Oklahoma City, will in future be known as the Oklahoma City General Hospital. Dr. J. E. Harbison, who is in charge, plans to double the capacity of the institution.

——Dr. James W. Scarborough, Gould, has been appointed superintendent of the state narcotic hospital at Darlington, succeeding Dr. J. W. Henry.

OREGON

State Board of Health Elects.—At the annual meeting of the state board of health in Salem, January 8, Dr. George E. Houck, Roseburg was elected president to succeed Dr. John H. Rosenburg, Prineville; Dr. Charles M. Barbee, Portland, was elected vice president and Dr. Frederick D. Stricker, Portland, secretary.

Hospital News.—The Springfield Hospital, Springfield, has been taken over by Mr. and Mrs. Clarence Grimes.——The new county hospital at Hillsboro, erected at a cost of more than $30,000, was recently dedicated. Dr. Elmer H. Smith is in charge of the institution.——Articles of incorporation for the Marshfield Methodist Church Hospital to be known as the Wesley Hospital, were adopted, January 7. Construction work will commence in the spring.——Dr. Charles E. Hunt, Grand Forks, N. D., has been appointed in charge of the department of obstetrics and pediatrics of the Eugene Hospital.

PENNSYLVANIA

County Medical Meeting.—At the annual meeting of the Mercer County Medical Society, January 10, the following officers were elected: president, Dr. Michael George Yeager; vice presidents, Drs. Beriah A. Montgomery, Grove City, and Frank S. Bakewell, Greenville, and secretary, Dr. Martha Edith MacBride, Sharon.

Testimonial to Dr. Adolph Koenig.—As a mark of esteem and affection, a complimentary dinner was given Dr. Adolph Koenig at the University Club, Pittsburgh, January 19, by colleagues and friends. Dr. Koenig, who conducted the *Pittsburgh Medical Journal* which merged with the state medical journal, was for eighteen years a member of the state board of medical examiners and was formerly president of the state medical society.

Philadelphia

Personal.—Prof. William W. Keen, of Jefferson Medical College, celebrated his eighty-seventh birthday, January 19. ——Dr. Benjamin Franklin Royer, former chief resident physician of the Municipal Hospital and former state health commissioner, has been appointed research associate of the American Child Health Association.

King of Siam Contributes to Jefferson Hospital.—A total of $515,000 has been raised by the Jefferson Medical College in its drive to finance the fourteen story hospital annex under construction. A contribution of $500 was received from the king of Siam who stated the donation was a reward for work which Dr. Victor Heiser did in that country to improve sanitary conditions.

Medical Club Officers Elected.—The regular annual meeting of the Medical Club of Philadelphia was held in the Bellevue-Stratford Hotel, January 18. The following officers were elected for the ensuing year: president, Dr. William Duffield Robinson; vice presidents, Drs. John H. Gibbon and Alexander MacAlister; secretary, Dr. William S. Wray, and treasurer, Dr. George A. Knowles.

John English Building Dedicated.—The John Clifford English Laboratory for chemistry and physics at Hahnemann Medical College and Hospital, Philadelphia, was dedicated, January 2. Dr. Julius M. Rogoff, Western Reserve University Medical School, Cleveland, was the principal speaker. The English laboratory will house also the dispensaries of the hospital, which will open in the near future. The laboratory was named in honor of the husband of Mrs. Mary English, whose endowment maintains it.

Health Committee Apportions Money.—On January 25 the council's health committee apportioned money from the $2,500,000 item in the loan bill approved last November at the general election. The following items were included: construction of a nurses' home, $200,000; construction of a building for feebleminded children, $150,000; construction of a building for feebleminded women, $1,200,000; construction of a new "Philadelphia Hospital for the Insane," $750,000. On completion of these buildings, the only insane patients in the Philadelphia General Hospital will be those under observation.

RHODE ISLAND

Personal.—Dr. Arthur H. Ruggles, Providence, has been appointed consultant in medical hygiene of Dartmouth Medical School, Hanover, N. H., to fill the vacancy caused by the death of Dr. Charles P. Bancroft.

TEXAS

Scholarship Awarded.—Miss Edith Hershey, head of the division of home economics, University of Texas, Galveston, has been awarded the medical loan scholarship of the General Federation of Women's Clubs, and will begin her studies in 1925.

Course for Water Operators.—The sixth annual course for water works and filter plant operators of Texas was held in Waco, January 21-26, under the auspices of the state board of health, the state and local water works association and the city health department. The purpose of the school is to decrease waterborne disease in smaller communities by training operators in approved methods of water purification. Lectures were given on coagulation and sedimentation, filter operation and chlorination, and laboratory work was done in chemical and bacteriologic control.

WASHINGTON

Society News.—At the annual dinner of the Seattle Surgical Society, January 12, Dr. Dean Lewis, professor of surgery, Rush Medical College, Chicago, the guest of honor, spoke on "Principles Involved in the Transplantation of Tissue." Dr. Otis F. Lamson, the retiring president of the society, was toastmaster.——At the annual meeting of the King's County Medical Society, the following officers were elected: president, Dr. Frank T. Maxson; vice president, Dr. George A. Dowling, and secretary-treasurer, Dr. John S. Lundy.——The Pierce County Medical Society has changed its constitution and by-laws as follows:

Under Article 6 there shall be added Section 2, reading: Any paid advertising in the public press by any member or group of members of the Pierce County Medical Society will be considered unethical, except (*a*) A physician newly locating in Pierce County may carry notices of such location for one month, said notices to contain only the name, address, telephone number and practice or specialty followed; (*b*) any physician on leaving his practice for an extended absence may run a notice to that effect for three days at the time of leaving and announcement of return for three days when returning to his practice, such notice to contain only the name, date of leaving or return, address and telephone number for a period not exceeding one month.

WISCONSIN

Personal.—Paul F. Clark, Ph.D., professor of medical bacteriology at the University of Wisconsin, has returned from a semester's leave of absence. Dr. Clark served as delegate at the Pasteur centenary in Paris.——Dr. Louis Dorpat, Rhinelander, has been appointed city health officer of Ironwood to succeed Dr. Clarence W. Olson, resigned.——Dr. Robert D. Cunningham, Milwaukee, has been appointed by Governor Blaine to succeed Dr. Oscar Lotz, Milwaukee, on the state board of medical examiners. He will conduct examinations in physiology and dietetics.

CANAL ZONE

Personal.—Dr. Patrick A. Buxton, London (England) School of Tropical Medicine, arrived at Cristobal-Colon, Dec. 1, 1923, on his way to the Samoan Islands where he will inaugurate preventive measures against filariasis. He inspected the malaria control work of the zone and took a large supply of top minnows to Samoa.

Conference on Maritime Quarantine.—The president of the Republic of Panama has called a conference to meet in Panama, R. P., February 25-29, to consider the international standardization of maritime quarantine. The mornings of the conference will be devoted to formal discussions and the afternoons to practical demonstrations of public health and hospital methods. Clinics will be held at Santo Tomas, Ancon, Corozal and Palo Seco hospitals. The Medical Association of the Isthmian Canal Zone will hold a special meeting at the Santo Tomas Hospital and a visit will be made to the site of the Gorgas Memorial Institute.

PORTO RICO

School of Tropical Medicine for San Juan.—Plans to establish a school of tropical medicine at San Juan were adopted, January 16, at a conference between the Porto Rican educational commission and the officials of Columbia University, New York (THE JOURNAL, Dec. 8, 1923, p. 1964). With the sanction of Columbia University College of Physicians and Surgeons a program of instruction will go into effect in the fall when three members of the faculty will be assigned to the school in San Juan, which will operate in association with the existing Institute of Tropical Research. The Columbia professors will work with Col. Bailey K. Ashford, representative of the United States, and Drs. Gonzalez Martinez and P. Gutierrez I., who represent Porto Rico.

CANADA

Tuberculosis Demonstration.—A five year tuberculosis survey will be undertaken in Three Rivers by the Canadian Red Cross, the Canadian Tuberculosis Association, the provincial government and the city of Three Rivers, on the order of the Framingham, Mass., demonstration. The survey was inaugurated, Dec. 10, 1923, by a public demonstration and banquet, at which Dr. Alphonse Lessard, director of the provincial bureau of health, presided. Among others present were Drs. Charles D. Parfitt and Robert E. Wodehouse, president and secretary, respectively, of the Canadian Tuberculosis Association, Dr. Leclerc and the Hon. Dr. Henri S. Beland, representing the Canadian Red Cross, who presented the Three Rivers committee with a check for $10,500 toward the expenses of the survey. This amount was contributed mostly by the Red Cross, the Canadian Tuberculosis Association and the Sun Life Insurance Company.

GENERAL

Insulin Licenses Granted.—The following laboratories have been granted licenses by the Toronto committee for the manufacture of insulin: E. R. Squibb & Son, New York; H. K. Mulford Company, Philadelphia; Frederick Stearns Company, Detroit.

American Hospital Association.—The 1924 convention of the American Hospital Association will be held in the Armory of the Sixth Regiment of Artillery, Buffalo, N. Y., October 6-11, under the presidency of Mr. E. S. Gilmore, superintendent of the Wesley Memorial Hospital, Chicago.

Dr. W. A. Sawyer to Return.—Dr. Wilbur A. Sawyer, who, for the last five years has been in Australia in connection with the International Health Board, will return to the United States this spring. While in Australia Dr. Sawyer was instrumental in organizing the Public Health Association of Australasia and served as editor of the *Health Forum*, published quarterly by that association.

Bacteriologists Elect.—At the annual meeting of the Society of American Bacteriologists in New Haven, Conn., Dec. 27-29, 1923, Major A. Parker Hitchens of the Army Medical School, Washington, D. C., was elected president for the ensuing year; Dr. Huntoon Harris, Queen's University Faculty of Medicine, Kingston, Ont., Canada, vice president, and J. M. Sherman, Cornell, secretary-treasurer.

The Henry Enos Tuley Memorial Fund.—Friends of the late Dr. Henry Enos Tuley, dean of the School of Medicine of the University of Louisville, are endeavoring to raise by voluntary subscription a memorial fund of at least $1,000, to be held in trust by the university trustees, the income from the fund to be awarded annually at commencement, to that undergraduate who submits the best essay on "The Ideals of a Doctor." Friends of Dr. Tuley, alumni of the University of Louisville, and every one who has admired the life work of Dr. Tuley, are invited to send their checks made payable to the Henry Enos Tuley Fund, 101 West Chestnut Street, Louisville, Ky. Acknowledgment of all subscriptions will be made in the alumni bulletin of the school.

American Association for the Advancement of Science.—The January 25 number of *Science* is devoted exclusively to the seventy-fifth annual meeting held in Cincinnati, Dec. 27, 1923-January 2 (THE JOURNAL, January 12, p. 136). Dr. William G. MacCallum, professor of pathology, Johns Hopkins University Medical Department, Baltimore, was elected vice president for the medical sciences section (N) and W. W. Cort, Johns Hopkins University, a member of the same section. Prof. Vernon Kellogg, Washington, D. C., was elected to be chairman of the local committee on arrangements for the next annual meeting at Washington. The council voted not to hold any summer meeting in 1924, but to aid the British association to make the Toronto meeting of the British association (August 6-13) a great success.

Bequests and Donations.—The following bequests and donations have recently been announced:

Abbott Hospital, Minneapolis, $500,000, under the will of Oliver C. Wyman of Minneapolis.

Danville (Va.) General Hospital has been bequeathed $250,000.

Prospects Heights Hospital, Brooklyn, $100,000, by the will of Mrs. Catherine W. Boardman.

Beth Israel Hospital, New York, $50,000, by I. L. Phillips.

Memorial Hospital and All Soul's Hospital, Morristown, N. J., each $25,000, under the will of George A. Low.

Presbyterian Hospital, Philadelphia, $10,000, to endow the "John Wanamaker Memorial Room," by the Wanamaker Memorial Committee.

Southampton (L. I.) Hospital, $5,000 for the equipment of a nurses' training school, anonymously.

St. Elizabeth's Hospital, Elizabeth, N. J., $3,500 for the endowment of a room by a resident of South Orange.

Wyckoff Heights Hospital, St. Catherine's Hospital, the Bushwick Hospital and the Bethany Deaconess Hospital, Brooklyn, each $500, by the will of John Auer.

The Samaritan Hospital and the Ashland County Children's Home, Ashland, Ohio, are beneficiaries under the will of E. B. Ricket.

Pacific Northwest Medical Association.—The third annual meeting of the association will be held in Vancouver, B. C., Canada, June 26-28, under the presidency of Dr. Alexander S. Monro. The territory comprised in the association includes five northwest Pacific states (Utah, Montana, Idaho, Oregon, Washington) and the three western provinces of Canada (British Columbia, Alberta and Saskatchewan). Among the speakers will be: Sir John Thompson Walker, London, England; Dr. Frederick J. Cotton, chief surgeon, Boston City Hospital; Dr. Walter W. Chipman, professor of gynecology, McGill University, Montreal; Dr. Horst Oertel, Strathcona professor of pathology, McGill University, and Dr. Leonard G. Rowntree, Mayo Clinic, Rochester, Minn. The committee of the summer school of the Vancouver Medical Association will join forces with the association for this occasion so there will be no separate session of the summer school in 1924.

Prevention of Juvenile Delinquency.—Dr. Victor V. Anderson, New York, director of the division for the prevention of delinquency of the National Committee for Mental Hygiene, has notified Dr. Marcus Haase, president of the council of social agencies, that Memphis has been selected for the establishment of a child guidance clinic. The council of social agencies will be asked to contribute from $12,000 to $15,000 for the upkeep of the offices and general expense of the clinic, which will deal with the problem of unadjusted children, who do not fit into their home and school environments, and who have bad habits or a tendency to drift into the delinquent class. These clinics have been established in several cities during the last year. A representative from the National Committee for Mental Hygiene aids in establishing the clinic and acts in an advisory capacity while it is in operation. It is planned, through a special gift of the Commonwealth Fund of New York City, during a five year demonstration, to select at least eight centers for the organization of such clinics (THE JOURNAL, March 31, 1923, p. 933).

FOREIGN

University to Be Established in Korea.—The government of Korea has decided to establish an Imperial University in that country. It is expected that the preparatory course of the university will open in 1926.

Irish Bone Setter Fined.—A jury awarded damages to the amount of $110 in the Dublin courts, Dec. 11, 1923, against a bone setter who treated the fractured leg of a schoolboy by bandaging over splints and the application of a liniment of soot and white of egg. Gangrene followed and the leg had to be amputated.

Memorial to French Physicians Killed in the War.—A memorial souvenir volume containing the names and citations of the French physicians killed in the World War was published last year. It contained 1,800 names, and enough money was realized from the sale of the volumes, after the distribution of copies to the subscribers and families, to erect a tablet memorial. It has been installed in the street wall of the Ecole pratique in the rue de l'Ecole de médecine. It is inscribed simply: "A la mémoire des 1,800 médecins morts pour la Patrie," with a bas-relief of a physician tending a wounder soldier in the shelter of a broken wall.

Physicians Knighted.—The names of fourteen members of the medical profession appear in the New Year list of honors conferred by the king of England. Sir Donald MacAlister becomes a baronet; Dr. Henry W. R. Bencraft, Dr. Byron Bramwell, Dr. Harry G. Waters, Dr. Henry L. Ferguson, dean of the faculty of medicine, Otago University; Dr. David J. Galloway of the legislative council of the Straits Settlements, and Lieut.-Col. William T. Prout, have been knighted. Lieut.-Gen. Sir William B. Leishman, director general of the Royal Army Medical Service; Major-Gen. Dennis J. Collins and Air Commander David Munro have been made Companions of the Order of the Bath.

German Deaths from Sickness in World War.—According to official figures published by the *Wirtschaft und Statistik*, 182,554 German soldiers died of disease in the World War, in a total of 1,711,154 deaths from all causes. Less than one eighth of the deaths were due to disease, or 13.8 per 1,000 men mobilized. The chief causes of deaths in the German army due to sickness were, "inflammation of the lungs" (27,371); tuberculosis (19,886); influenza (14,161); typhoid (10,548), and dysentery (8,040). It is interesting to compare the

Crimean War in which the English loss from sickness was 76 per cent. of the total deaths and the French loss 79 per cent. of the total deaths.

Rockefeller Laboratory for Japan.—The home minister of Japan has notified the Rockefeller Institute that they would prefer a hygiene and sanitation laboratory to be erected at a cost of 5,000,000 yen ($2,500,000) following the offer of the Rockefeller Institute of New York to make a present of some scientific institution to that country. A committee of establishment of the Rockefeller Oriental Hygiene and Sanitation Laboratory will be formed on the arrival of the Rockefeller mission from the United States. On completion of the laboratory, St. Luke's Hospital will become affiliated with it and the government will be asked to bear the expenses of maintaining both institutions.

Society News.—The Australasian Medical Congress was held, Nov. 12-17, 1923, at Melbourne, under the presidency of Mr. G. A. Syme, F.R.C.S. The British Medical Association was represented by its past president, Sir William Macewen, who formally opened the new anatomy department of the University of Melbourne. The governor of Victoria unveiled the memorial erected in memory of members of the society who gave their lives in the World War. Drs. W. T. Hayward and R. H. Todd were awarded the medal for distinguished services to the association, the profession and the community.——The next South African Medical Congress will be held in Grahamstown, April 21-26. Prof. Sir George Cory will officially open the congress.——The British Association for the Advancement of Science will hold its annual session in Toronto, Canada, August 6-13.

Personal.—A dinner was tendered to Sir John Bland-Sutton, January 24, to mark the occasion of his election to the presidency of the Royal College of Surgeons of England.——Dr. Wu-Lien-teh, president of the National Medical Association of China, is lecturing in Japan. Dr. Wu is director of the North Manchuria Plague Prevention Service and a graduate of the University of Cambridge, England.——Dr. A. M. Stalker has retired from the professorship of medicine at St. Andrew's University, Dundee.——Dr. Andrew Balfour, director of the Wellcome Bureau of Scientific Research, London, is visiting the United States under the auspices of the International Health Board to study American methods of health administration.——Dr. Yayoi Yoshioka, president of the Woman's Medical College, Tokyo, Japan, has purchased Dr. Azuma's hospital from his widow and will manage it. Dr. Azuma was killed in the earthquake.——Lady Constance Butler has been appointed director of the roentgen-ray department at St. Andrew's Hospital, London, England. It is stated that she is the first woman in England to take up roentgen-ray work as a specialty.

Deaths in Other Countries

Dr. **Lauriston E. Shaw,** consulting physician to Guy's Hospital, London, and former dean of the medical school of the City of London Hospital, on Christmas Day, aged 64.——**Sir J. Walton Browne,** consulting surgeon, Royal Victoria Hospital, Belfast, and senator of Queen's University, Belfast; president of the Ulster Medical Society; died, Dec. 18, 1923, of heart disease.——Dr. **Robert W. Fisher,** director of the Belgaum Vaccine Institute, Public Health Department of Bombay, India, aged 48.——Dr. **Ernst Schweninger,** Munich, emeritus professor of skin diseases at the University of Berlin, Bismarck's personal physician, author of works on the cause and control of obesity, aged 73.——Dr. **Victor Scheel,** Copenhagen, editor of the *Ugeskrift for Læger* since it has been the organ of the Danish Medical Association, formerly president of this association and of the Copenhagen Medical Society, aged 60.——Dr. **G. Reali,** Tessin, founder and long president of the Medical Association of Italian Switzerland, and of the Swiss Society for Climatology, aged 71.——**Sir Napier Burnett,** president of the Newcastle (England) Clinical Society, on Christmas Day, 1923, aged 51. He represented the British government in Geneva at the League of Red Cross Societies.——Dr. **Maximo Castro** of Buenos Aires, visiting in Paris, aged 54.——Dr. **L. Unger,** professor of pediatrics at the University of Vienna.——Dr. **E. von Malaise,** professor of neurology at the University of Munich.——Dr. **H. J. Hamburger,** professor of physiology at the University of Groningen, aged 64.——Dr. **J. Binnendijk,** major general in the Netherlands army, aged 81.——Dr. **Damazo Antunez** of Huaraz, Peru, a member of the legislature at one time and leader in public health matters, aged 63.——The *Gazette des hôpitaux* records that Dr. **Pellissier,** the physician in chief of the aviation center at Cuers-Pierrefeu, was one of the officers lost in the *Dixmude* catastrophe.

Government Services

Hospitals Authorized

Pursuant to instructions of the Secretary of War general hospitals, organized reserves, No. 14 (Michael Reese Hospital Unit, Chicago), and No. 107 (Cook County Hospital Unit, Chicago), and Evacuation Hospital No. 64 (Grace Hospital Unit, Kansas City), have been authorized.

Contract for Veterans' Hospital Awarded

Howard S. Williams, San Francisco, has been formally awarded the contract for the general construction work on the U. S. Veterans' Hospital at Livermore. The contract provides that twenty-four bungalow buildings shall be erected at a cost of $757,740, and that work shall be completed within 440 days. Grading, road building and such bridge building as was necessary have already been completed. The site was purchased nearly two years ago and comprises about 237 acres. The hospital will be approached by a 200 foot steel bridge across the Arroyo Valley; the mechanical equipment contract was let for $238,800, and all the construction work will be under the supervision of Major William H. Radcliffe.

Hospital to Be Enlarged

Director Hines of the U. S. Veterans' Bureau announced, Dec. 25, 1923, that he had concluded arrangements for increasing the capacity of the Chelsea Hospital, near Boston, by 160 beds, and that probably the Essex (Mass.) Hospital might be purchased for ex-service men, instead of enlarging the U. S. Veterans' Hospital at Rutland, Mass.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 7, 1924.

The Inquiry Into the Panel Physicians' Fee

The court of inquiry appointed by the minister of health to report what should be the amount of the annual capitation fee for an insured person under the Insurance Act has been opened. Printed cases were submitted by the Insurance Acts Committee of the British Medical Association and by the ministry of health. At the outset, Dr. Cox, secretary of the British Medical Association, protested against the action of the approved (friendly) societies, who, having stated that they did not intend to take part in the proceedings, now, after the evidence of his association had been put in, said that they had changed their minds. Dr. Brakenbury, chairman of the Insurance Acts Committee of the British Medical Association, gave evidence. He submitted that the medical profession deserved relatively high rates of remuneration and that insurance physicians must be considered on the same lines as other members of the profession in order that the best men might not be drawn into other branches of professional work. The terms ought to be such as would retain in areas not ordinarily remunerative a sufficient supply of first class physicians. The work of the general practitioner had become more arduous with the advances of medical science in recent years. The increase in the cost of living was such that a fee of more than $2.75 would be needed to compare with the prewar fee of $1.75. The panel physicians protested against a capitation fee based on a time equivalent. It would be a bad thing for the nation to calculate that the whole of a physician's time was occupied in his practice in normal circumstances, because it was necessary to be prepared for emergencies, such as epidemics. The ministry suggestions involved the theory that 8,000 physicians fully occupied could carry on the whole of the general practice in this country. That was an absurdity,

as the number of general practitioners was at least two and a half times that figure.

Dr. Cox gave evidence that the commonest fees charged by physicians to private patients were 75 cents for consultation and $1.25 for a visit. But there were areas in which the fees were 50 and 75 cents, respectively. In eighteen out of forty cases of public medical services controlled by physicians, the capitation fee was $3 for attendance and medicine, and in the remaining cases the rate varied between $5 and $1.50, the income limit of the patients in the last being $5 a week. In contracts for police attendance—a selected and healthy class—the capitation fees ranged from $5 to $2.75.

Mr. M. L. Gwyer, solicitor to the ministry of health, made an important statement on behalf of the ministry. He said that the fee which his department suggested did not represent the least for which a service of some kind could be obtained, but was put forward after a full and impartial consideration of all the known facts as representing the value of a good average service under the insurance acts. The ministry's figures were confirmed by advertisements in the medical journals of practices for sale. The value of a practice was found to work out $5 per panel patient. In fixing the capitation rate, the ministry never based it on the assumption that it was to remunerate a physician for full-time service in insurance work. He thought that no physician was engaged in insurance practice and in nothing else. The fee of 75 cents for an attendance, which was what the capitation fee of $2 produced, corresponded closely to the average obtained in practice of the same kind outside the Insurance Act. In a large number of practices for sale, the fees were said to be 50 cents and upward.

Dr. J. Smith-Whitaker, senior medical officer of the ministry of health, objected to the claim of physicians to be subsidized out of the National Insurance Act. Broadly speaking, about 50 per cent. of the insured population passed through the physicians' hands every year—in the urban areas about 60 per cent., and in the rural, about 30. About half of the patients received sickness benefit and had to have certificates furnished. The work under the Insurance Act could be properly performed in about half the time of a fully employed physician. If the average net income of a physician were taken as about $6,000, then the ministry claimed that he would be paid at that rate by a capitation fee of $1.75.

A medical officer of the ministry gave his experience in the industrial area of South London. The minimum prewar fee for poor patients was 12 cents. In ordinary cases the fee charged by the physician at this office was 36 cents, and 60 cents for visits at the patient's home. There were private patients who paid as much as $1.75, but they were rare.

Spiritual Healing

The report of the committee appointed by the Archbishop of Canterbury to consider and report on the use with prayer of the laying on of hands, of the unction of the sick, and of other spiritual means of healing, has been published by the Society for the Promotion of Christian Knowledge in a pamphlet entitled "The Ministry of Healing." The committee included a number of bishops and other clergy and leaders of the medical profession. Among the latter were Sir Clifford Allbutt; and medical psychologists, such as Sir Robert Armstrong Jones, Dr. William Brown, Dr. Hadfield and Dr. W. H. Rivers. The committee decided that there were three main lines for its work: 1. The historical question, What is the evidence for what is called "the ministry of healing?" and What was the character of such a ministry if it existed? 2. A comparison between the different methods of healing and their relation to Christian thought. 3. Should a ministry of healing now be recognized? In regard to the second point, after prolonged discussion the committee concluded that religious treatment of bodily illness must be related to other methods of treatment, and that religious treatment aims at something more than the cure of bodily illness and has in view the restoration of the patient's whole nature. The power which heals the body makes use of three methods: (*a*) material, as surgery and drugs; (*b*) psychic, as suggestion and different forms of mental analysis; (*c*) devotional and sacramental. Spiritual healing may be said to be that which uses any of these in reliance on God, though in popular use the term is often confined to the last. In all these methods of healing, faith may be an important element; but, as far as purely physical healing goes, faith works irrespectively of the ground on which it rests. In the third method, in which something more than physical healing is in view, the character of the faith is of primary importance. Treatment from the material side rests on the scientific doctrine that there is a real and objective virtue in certain vegetable and mineral products. At the same time, drugs often depend for their effect on the confidence of the patient both in the physician and in the prescription; that is, faith and suggestion are already at work.

The general name of the second method is psychotherapy. It includes three main departments: (*a*) Reeducation and persuasion aiming at mental and moral adjustment by reason and argument. Such cases as aphonia or functional paralysis can often be thus treated effectively. (*b*) Suggestion aiming at influencing subconscious processes, for it is in the subconscious and unconscious parts of the mind that the source of many mental and moral ills lie. (*c*) Analytic methods, which aim at investigating what are assumed to be the deepest layers of the mind, and depend for success on the discovery of latent "complexes" and morbid processes which have given rise to symptoms. Whether the theories as to the ultimate origin of nervous disease, such as propounded by Freud and Jung, will be confirmed by future investigators, the committee does not feel competent to say. But as spiritual disorder often leads to moral and mental disorders, and indirectly to such physical disorders as hysteria, those who have the "cure of souls" should study the psychologic principles which lie behind the methods of psychic treatment. However, analysis should not be undertaken by persons without considerable medical experience and without working in close connection with a physician.

With the third method—the devotional and sacramental—the committee was more immediately concerned. "Here," it observes, "the appeal is direct to God as the immediate source of all life and health, without the use of any material means. The appeal has taken various forms, as in Christian science and kindred doctrines. Within the church it has occasioned the revival of systems of healing based on the redemptive work of our Lord. They all spring from the belief that Christ taught that the power of spiritual healing is the natural heritage of Christian people. All healing assumes that disease is an evil to be combated. Theologically stated, this means that health is God's primary will for all his children and that disease is a violation of this orderly condition to be combated in God's name and as a way of carrying out his will. Disease, like other forms of evil, may be permitted by him to exist as a result of man's misuse of his freedom, as a stimulus to human sympathy and research, or as a means of spiritual discipline. Spiritual healing must not exclude medical means. The former not only heals the disease but also raises the whole nature of the patient to a higher level. In other words, in spiritual healing, the healing of the spirit is primary, of the body secondary.

The committee found that those who were applying the truths of Christianity to patients suffering in mind or body, with the definite suggestion that it was the will of God that sickness as well as sin should be overcome, were obtaining remarkable results. But there was no evidence of healing

which could not be paralleled by similar cures wrought by psychotherapy without religion, and by cases of spontaneous healing which often occurred even in the gravest cases in ordinary medical practice. No cases were found of those working within the church who did not desire to cooperate with the medical profession. But from religious influence greater results might be expected than from nonreligious methods. No witness desired the licensing of "healers." The committee evinced a general desire for the authorizing of "anointing." There was considerable doubt as to the value of "services of healing," to which crowds of sick folk were invited to come.

Of the medical members of the committee, Dr. W. H. Rivers, the medical pyschologist and anthropologist, died in July, 1922. Sir Clifford Allbutt and Sir Robert Armstrong-Jones signed the report with the intimation that they desired not to associate themselves with recommendation on the use of unction.

PARIS

(From Our Regular Correspondent)

Jan. 4, 1924.

Medicine and Physicians

It is customary in France for the different faculties to take turns in delivering the address at the reopening exercises of the university each year. This year at the University of Strasbourg, the honor fell to the medical faculty, and Prof. G. Weiss, dean, was selected to give the address. He took as his subject, "Medicine and Physicians." He spoke first of popular misconceptions in regard to medicine and the peculiar opinions that one frequently hears expressed about physicians. Speaking then of patients, Weiss expressed astonishment over the frequent lack of confidence in the men who have devoted their lives to acquiring the knowledge of their predecessors and to developing new knowledge in the field of medicine, and the trust that is placed in ignorant charlatans, whose influence is based on idle gossip, on man's love for the mysterious, and on his feeling of contempt for a man who frankly admits that there is no absolute certainty that he can prevent a mortal from dying. To judge from the conversations one hears on street cars and trains, one might suppose that everybody was versed in medicine except the physician. The public is at times fascinated by the empiricist, who claims to have secret remedies for all diseases in spite of his clumsiness and often absurdity. The remarkable thing is the tenacity of this faith, which persists in spite of the occurrence of disappointments and accidents. Every day our clinics are thronged with unfortunate men and women whose condition is hopeless because some charlatan promised to cure them at a time when the disease was still amenable to treatment, and keeps them from the hospital until the condition is hopeless; he then sends them only to avoid being held responsible for his misdeeds.

The credulity of the public is such that some physicians—the apaches of our profession—actually conceal their doctor's title and carry on what appears to be an illegal practice, and beg the police not to divulge the fact that they hold a medical diploma, for fear they will lose some of their clients who are destitute of sense.

Tuberculosis and the Army

Dr. Jeandidier, chief physician of the second class (ranking as lieutenant colonel), published recently in the *Archives de médecine et de pharmacie militaires* a long and interesting mémoire on the subject of tuberculosis and the army.

CONTAGION IN THE GARRISON

It has long been held, and is maintained by Professor Grancher, that the garrison is a fruitful source of tuberculosis contagion. Kelsch protested against this view and emphasized two points: (1) The number of persons in the garrisons who suffer from open tuberculous foci is extremely small, and such as there are stay but a short time in one place. (2) The dust of garrisons does not contain virulent tubercle bacilli. Jeandidier points out that the recently developed belief that tuberculosis is a disease of childhood and that the bacilli survive in foci to all appearances healed confirm the opinion of Kelsch, who considered tuberculosis in soldiers "a second stage of the tuberculosis of early childhood."

This does not mean that no cases of contagion occur in garrisons, but that they are exceptional. However, rare though such cases may be, the fact that they are possible makes it incumbent on us to use every measure of prophylaxis against contagion. The careful selection of men by strict examination is the most essential step.

RELATION OF MILITARY TO CIVILIAN TUBERCULOSIS

Tuberculosis in the army merely reflects the tuberculosis among the civilian population, but with the difference that the incidence of the disease will be in direct proportion to the care with which the selection of the men was made. Statistics show, in fact, that the development of tuberculosis in the army is closely correlated with the region from which the contingent was drawn. If the contingent came from a region where tuberculosis was particularly prevalent among the civilian population, as, for example, in the departments of northwestern France, and if the men remain in garrisons located in the vicinity of their homes, the army corps of this region will have a larger proportion of tuberculous patients than an army corps drawn from a region in which the civilian population is less affected. Furthermore, even though men from Brittany and Normandy are transferred to army corps garrisoned at a great distance from their home province, they develop nevertheless a high percentage of tuberculosis morbidity.

INCITING CAUSES

We may say that the army draws every year a certain levy from the host of those with latent tuberculosis. The question may be raised as to what influences are brought to bear that cause the disease to change from a latent to a manifest form. The part played by overexertion appears undeniable; in fact, it may be said that tuberculosis in the army is frequently the direct expression of a chronic overexertion. The military diets have been subjected, during recent years, to considerable criticism. Various military writers call attention to the necessity of increasing the ration of the young soldier, accustomed, as he is most frequently, to a more voluminous, if not a more substantial, diet than he receives in the garrison. They emphasize also the fact that the preparation of the food is by no means as good as it should be and that, since food well prepared is more completely eaten and better digested, an improvement in the cooking would have more effect than an augmentation of the ration.

Chilling also plays an important part. If the soldier must be made accustomed to all sorts of weather, his living quarters should have a comfortable temperature without overheating. With the exception of garrisons in which a central heating system has been installed, rapid-combustion stoves that throw out excessive heat, with limited supply of coal for each regiment, are still in use; then, too, many barracks face west and are thus exposed to wind and rain. Some barracks, however, built in 1912 and 1913, show decided improvement. They are of two stories, and, on both floors, the rooms, arranged along the sides of the building, all open at one end in a well lighted corridor, while the other end is lighted by outside windows. Thus, each room has only a narrow outside exposure and only a few outside openings. The rooms are thus easy to heat, and are, at the same time, adequately lighted.

EXCLUSION FROM THE ARMY

Permanent or temporary exclusion from the ranks of the army should not be confined to those whose sputum contains tubercle bacilli, nor even to subjects with tuberculosis that is progressive, but should be extended to those whose constitution is manifestly too weak to endure the fatigues of military service; to the more or less clearly defined class of the "pseudotuberculous," who suffer from affections that compromise their aptitude for service, and finally those who are on the threshold of the disease, whose fate may depend on a judicious and opportune decision.

PRAGUE

(From Our Regular Correspondent)

Jan. 2, 1924.

Rhinoscleroma

At the last session of the rhinolaryngologic society in Prague, Prof. J. Cisler communicated his recent investigations on the prevalence of rhinoscleroma in the Czechoslovak Republic. In 1919 a study of this comparatively rare malady was undertaken by the late Prof. O. Frankenberger, who collected data on seventy-four cases in Bohemia. The study of Prof. J. Cisler includes seventy-five additional cases compiled from all provinces of the Czechoslovak Republic. It is well known that rhinoscleroma is endemic in Poland and is spreading slowly from the east to the west. A large proportion of the patients seem to come from the northeastern part of Bohemia. It has been asserted that the Slavs are more susceptible to this disease; Cisler finds no confirmation for this statement in his material, which includes a large proportion of Germans as well as Slavs. His impression is that the malady has become more frequent since the World War. As to the mode of spread of the disease, he found several examples of familial infection, the disease affecting several members of a family. In addition, he found on examinination of the histories of the families of patients that several deaths which had been attributed to other causes were very likely caused by rhinoscleroma. He has observed also cases in which the disease had been contracted by soldiers who had been in Russian Poland during the war and had brought the malady home. There seems, therefore, no doubt that the disease is contagious. There seems to be no difference in the prevalence in the two sexes; thirty-seven patients were males and thirty-eight females. The highest rate of incidence seems to fall in the age group 20-30; but as it is difficult to establish exactly the date of onset of the disease, these data are not very reliable. The youngest patient was 16 and the oldest 69 years of age. In controversy with previous statements in the literature that the disease occurs among poorer people, he has found several cases among those in better circumstances. Clinical analysis of the cases shows that the disease is rarely diagnosed in the early stages. The changes in the nasal cavity are the most constant symptom. Cisler advocates measures against the spread of this disease, which seems to be on the increase, and which can be checked effectively only through preventive measures.

Association for Combating Venereal Disease

The Czechoslovak Association for Combating Venereal Diseases was recently transformed into a national body. Originally the association was limited in its activities solely to Prague. From now on it will endeavor to establish local branches in all seats of county administration, and will have special governing committees for each province. The local committees are to be organized in cooperation with the Masaryk Antituberculosis League and the Czechoslovak Red Cross. The association, which was largely instrumental in bringing about the recent legislation in the Czechoslovak Republic against venereal disease by compulsory treatment and abolition of prostitution, is cooperating with the government administration especially in educational measures.

Studies on Genetics

Prof. Vladislav Ruzicka of Prague has published a voluminous treatise on the biologic foundations of eugenics. The author, an experimental biologist, has collected in this book his lectures on genetics. The work is divided into three parts: The first deals with questions of general genetics, the second considers genetics in relation to mankind, and the third deals with genetics as applied to social groups. This pioneer work, which contains a large amount of original research, arrives at the conclusion that the systematic study of eugenics and application of the results of the study should be entrusted to a special institution erected for this purpose and supported by the government.

BUDAPEST

(From Our Regular Correspondent)

Dec. 28, 1923.

Wheat Valorization of Medical Fees

In view of the fluctuation of the Hungarian currency, the medical profession has been obliged to raise fees almost from week to week. Although the increase has never corresponded to the depreciation of the currency, and, in fact, medical fees are the only ones in Hungary which do not reach the so-called gold parity, yet the general press has commented on the raise of medical fees as inhuman and not worthy of the medical profession. Some medical journals even have had disputes with the lay press on this subject; but, judging from the correspondence addressed to the journals, it seems that the general public believes that the physician should be satisfied with only half pay for his work, the other half being taken out in love for his work. These discussions have led some branches of the National Medical Association to introduce the wheat valorization: a medical consultation is priced at the value of 5 kg. of wheat. The fees paid at present not being equivalent to 2 kg. of wheat, the increase is considerable; but, even so, it is only half of the prewar fees, the price of a medical consultation being then at least 2 kronen (40 cents), the value of at least 10 kg. of wheat. The board of the association has stated that, in accordance with its well known altruism, officials and private clerks are made exceptions to the rule, and will pay according to their financial means.

Insulin in Hungary

The medical profession of Hungary, after reading the reports of the sensational discovery of insulin and the excellent results attained with it in particular cases, was obliged to wait some months before the drug was available, even for the university clinics; first, because they could not get supplies from England, owing to the scarcity of the drug there, and, secondly, because its price was prohibitive. The first consignment for the Budapest Clinic arrived in June, since which time it has been experimented with continually. Dr. Balint, professor of clinical medicine, has written on the excellent effect of insulin in cases of coma and in cases in which surgical intervention is necessary in a diabetic subject, and he expresses the hope that insulin is only a milestone in the study of the therapeutics of diabetes which may lead eventually to cure of the disease. The price of insulin in June and July was about $6; only a multimillionaire could afford to avail himself of its advantages. Later, when the German chemical manufacturers began to prepare it, it was sold for about $4.50. Now a Budapest manufacturer, Richter Gedeon & Co., is preparing it, and the price has fallen to $2.50. Though still unapproachable for the masses, this being more than the average daily income of a physician of mediocre practice, insulin of this make is now becoming popular.

The Treatment of Hemorrhoids

Dr. Hümer Hültl, professor of surgery at the University of Budapest, recently gave an address on the modern treatment of hemorrhoids, based on his experience in a quarter of a century. He said that from the point of view of treatment we can divide the cases into three groups; (1) external or internal varices with proctitis or inflammation of the anus, without bleeding and without great pain; (2) varices that are continually bleeding, and (3) internal varices that prolapse readily, and become inflamed, incarcerated and gangrenous. With the first group, it is most important to teach the patient to live a suitable life. We prescribe when and how much he should exercise, what and how he should eat, and how he should regulate the bowels. We should not expect much from the drugs recommended in the books. It is much more important to regulate the patient's mode of living. He gives the following advice, the correctness of which is proved by the gratefulness of almost all who have followed it: 1. The patient takes a tepid sitz bath every morning and evening for five minutes, and washes with tepid water after every bowel movement. It is insufficient to use paper, as this does not clean out the wrinkles of the anus thoroughly and may cause itching and, consequently, involuntary scratching. If the patient can regulate the bowels to move in the morning, so much the better, because he can take the bath after the movement. 2. The patient must not eat foods containing irritant condiments, such as those that cause a smarting in the mouth. He must abstain from foods that are difficult to digest. He must chew his food thoroughly, eat five meals a day, and take only a little each time. 3. He must take no aperient drugs. There are patients who insist on having a movement every day and who will take the most drastic aperients, which cause diarrhea and colitis, followed by constipation. Hültl prescribes a tumbler of warm natural laxative water at bedtime. If there is no result in the morning, the patient waits till evening, and then takes another tumbler. The effect of the two glasses will be added together, and the result is certain. 4. In case of obstinate constipation, the patient may use irrigations to be made with from 200 to 300 c.c. of tepid water. The irrigation may be of advantage in two ways, according as it is done before or after stool: before stool, if the fecal column behind the anus is not sufficiently moist because of the chronic colitis, and during its passage through the anus, it eventerates the internal varices; after stool, if the feces in the rectum do not form a compact mass and the rectum is not entirely emptied. This is much more frequent than one would think, and the fecal remnants are apt to cause irritation. 5. The patient is instructed to walk much, and to take indoor exercises and some light sport (except cycling and excessive horseback riding). Zander treatment is also useful. Patients must avoid cushioned seats unless the hemorrhoids are inflamed. If these rules and methods do not lead to abatement of the complaints within four weeks, an operation is necessary. With hemorrhoids that are frequently inflamed and bleeding, the quickest cure is operation. With patients who fear the knife, compresses, elevation of the pelvis, and the method described may be tried. The operation is not dangerous, and can be performed in every instance under local anesthesia. There are many methods, but the Langenbeck method is still the best; it consists of pulling forward the knots after having widened the anus, and cauterizing them in a radial direction (they should not be burned off, because the slough may separate and cause severe secondary hemorrhage). It is not advisable to use rubber drains or iodoform gauze, because these cause tenesmus. Hültl does not ligate the varices because of the painfulness of the procedure. For patients who refuse the operation, two nonsurgical measures may be tried: Boas dilates the sphincter, expresses the varices and applies aspirating cups, whereon the swelling causes thrombosis. The same course and process can be produced by injecting one or two drops of concentrated phenol (carbolic acid). The procedure is not painful, but not at all so free from danger as is said. Fatalities after phenol injection from embolism have been reported. If the technic is faulty, gangrene may occur.

BERLIN

(From Our Regular Correspondent)

Jan. 5, 1924.

Physicians and the Health Insurance Societies

January 4, renewed negotiations for a settlement of the question of medical assistance took place in the federal ministry of labor. The proposal of the physicians to restore former contract conditions was rejected by the health insurance societies. Thereupon the representative of the federal ministry of labor called the attention of both parties to their obligations toward one another as laid down in the Berlin agreement of Dec. 23, 1913, to which I have already referred. According to this agreement, which has the force of law, after cancelation of a contract between physicians and health insurance societies, the conditions of the old contract remain binding on both parties until a new contract has been entered into. The representatives of the physicians were, for the most part, willing to accept this view, but the health insurance societies denied obligation of the health insurance societies to admit physicians to the panel under the old conditions. The ministry of labor will instruct its officers to enforce terms of the agreement in their dealings with the *Krankenkassen*.

In the meantime, the league of the societies has sent a circular letter to constituent societies; but the prospects for a restoration of normal relations between physicians and health insurance societies do not seem to have been brought nearer through this inquiry. A number of meetings of the individual members of the health insurance societies are being planned for the near future, with the avowed purpose of bringing pressure to bear on the government and the health insurance societies to effect a definitive and satisfactory settlement of the present controversy. At the conciliation meeting of December 21, it was agreed by both parties to the controversy that, until a settlement should be reached, all acts that would be inclined to increase the bitter feeling already existing should be avoided. Nevertheless, want ads have appeared in the large Berlin journals in which the Berlin leagues of health insurance societies advertise for physicians who will treat on a contract basis, either at their offices or in special dispensaries, the members of the *Krankenkassen*. For this reason, the struggle (at least, in Berlin) has become much more bitter.

As will be readily understood, the medical profession regards physicians who accept such offers of the health insurance societies in the same light that the trade unions look on strikebreakers, and will use against them all the disciplinary measures available. Retaliatory measures are also being adopted against the health insurance societies. If a health insurance society establishes a dispensary or consultation center, the panel physicians will take the attitude that this health insurance society thereby declares that it has assumed the responsibility for the treatment of its members. The panel physicians will consequently give no medical assistance to the members of such health insurance societies except in emergency. The health insurance society whose members are employees of the Allgemeine Elektrizitäts-Gesellschaft has been notified to this effect. This incident furnishes further evidence that there is danger of the entire health insurance system being disrupted if a settlement of the controversy is not soon effected. That in Berlin the insured workmen are not disposed, without a struggle, to give the executive committees of the *Krankenkassen* carte blanche to

proceed as they choose, may be seen from the events of the mass meetings that have been held in Berlin during the last few weeks. The following protest sent by an insured member to the *Vossische Zeitung* is significant:

Last November, just before the beginning of the "physicians' strike," my son-in-law, an insured member of the Allgemeine Ortskrankenkasse, Berlin, became gravely ill. The free choice of physician made it possible for my daughter to call in the physician who had attended her since she was a child. The physician found her husband's condition serious and ordered him sent immediately to the hospital. When my daughter went to the office of the health insurance society to have the physician's hospitalization order approved, she was informed that it would be necessary for the so-called *Vertrauensarzt* (confidential physician of the health insurance society) to examine into the case and give his approval of the order for hospitalization. The *Vertrauensarzt* appeared, the following day, at my daughter's residence and declared that the health insurance society was unable to pay hospital charges for such patients as her husband, and recommended the energetic use of footbaths. But the constant application of footbaths was not in keeping with the narrow quarters occupied nor with the condition of the patient. When, on the following Sunday, the patient's condition became more alarming, the family physician declared that another energetic attempt must be made to get the patient admitted to a hospital, and that, if the health insurance society persisted in withholding its permission, an appeal should be made to the physician for the poor. My daughter hastened to the latter, but, as it was Sunday and my daughter had secured no certificate from the overseer for the poor, her request received little attention. In her distress, she hurried to the emergency hospital center. When she had described to the physician in charge the serious condition of the patient, he telephoned at once for an ambulance. An hour later, my son-in-law had been admitted to the Urban Hospital. After the physician of the emergency center and the director of the hospital had examined the patient, they both asked why the patient had not come a week earlier. A few days later, my son-in-law died. When his death was reported to the health insurance society, the society expressed a willingness to pay a death indemnity of 424 billion, the equivalent of 42.4 gold pfennigs. If the health insurance societies commit such atrocities when free choice of physician obtains, the insured can at least imagine what they can expect in return for the 10 per cent. of their wages that goes to the *Krankenkassen*, when they are compelled to accept whatever physician the health insurance society offers them and are treated in dispensaries established by the *Krankenkassen*.

Consultation Centers for Venereal Patients

The number of consultation centers, to which I have referred in previous letters, has increased from 174 in 1921 to 188 in 1922. In 1922, 106,763 persons were examined in the consultation centers (as compared with 118,982 the previous year), 17,156 of whom were found to be free from venereal disease. The total number of infected for the two years 1922 and 1921, respectively, was 77,307 and 91,019, being 43,921 and 52,350 men, 31,168 and 36,626 women, and 2,218 and 2,043 children under 14 years of age. Of the men, 25,297 were suffering from syphilis, 15,008 from gonorrhea, 1,361 from gonorrhea and syphilis, and 923 from some other venereal disease. Of the women, 21,523 were suffering from syphilis, 6,977 from gonorrhea, 1,745 from gonorrhea and syphilis, and 923 from some other venereal disease. Of the children under 14 years, 1,642 had syphilis; 444, gonorrhea, and 121 some other venereal disease. Of the men and women infected, 12,388 men and 8,150 women, or 28 and 26 per cent., respectively, were married. So far as the records show, 61,921 of the patients were insured against disease or disability; there were 5,966 noninsured who were members of the families of insured, and 8,942 other noninsured persons. In addition to the 77,307 new persons reported in 1922 as affected with venereal disease, there were 126,164 continued from former years, so that in 1922 there was a total of 203,471 persons under observation by the consultation centers (187,467 in 1921). During the year 1922, 53,878 persons were dismissed or released from observation. At the end of 1922, there were still 149,593 under the observation of the consultation centers (129,295 in 1921). The number of persons who were given advice in 1922 was 115,458 (126,522 in 1921); the total number of consultations was 200,212 (207,053 in 1921). The consultations led to the recognition of disease symptoms requiring treatment for syphilis in 46,535 and for gonorrhea in 17,587 cases, and necessitating prophylactic treatment in syphilis in 17,546 cases (13,848 cases in 1921). Unfortunately, the consultation centers also are threatened with collapse for lack of funds.

Marriages

EDWARD JERALD VAN LIERE, Morgantown, W. Va., to Miss Helen Louise Kimmins of Wheeling, Nov. 29, 1923.

OSCAR EVALD OLSON, Red Oak, Iowa, to Miss Esther Anderson of Clifton, Kan., at Morganville, Nov. 22, 1923.

DONALD JOHN MCCORMICK, Pottsville, Pa., to Miss Elizabeth Josephine Tracy of Conshohocken, Dec. 27, 1923.

JAMES CARY PEGUES, Galveston, Texas, to Miss Virginia Thomson Scott of Atlanta, Ga., Dec. 1, 1923.

BERNARD H. SIMONS, Chaska, Minn., to Miss Adelaide Collins of Minneapolis, in December, 1923.

J. SPENCER CALLEN, Shenandoah, Pa., to Miss Minnie J. Hancock of Shamokin, Nov. 29, 1923.

J. FRANK CLARK, Iowa Park, Texas, to Miss Josephine Daniels of Abilene, Nov. 6, 1923.

ABRAHAM R. LINCOLN, Detroit, to Miss Mabel M. Fraser of Cadillac, Mich., Dec. 22, 1923.

WILLIAM JAMES HURLEY to Miss Frances Anna Kreuz, both of Chicago, January 23.

LOUIS D. BACIGALUPI to Miss Alma McNeilly, both of San Francisco, January 17.

Deaths

Herman Reineking ⊕ Milwaukee; Rush Medical College, Chicago, 1880; University of Heidelberg, Germany, 1886; associate professor of surgery at the Wisconsin College of Physicians and Surgeons and the Marquette University School of Medicine, Milwaukee; on the staff of the Milwaukee County Hospital, and former president of the Wisconsin State Medical Society; aged 67; died, January 21.

William Wellington Woodward ⊕ West Chester, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1905; past president of the Chester County Medical Society; served in the M. C., U. S. Army, in France, during the World War; on the staff of the Chester County Hospital; aged 43; died, January 16, of pneumonia following septicemia contracted while operating.

Malcolm McLean, New York; Medical Department of Columbia College, New York, 1869; member of the Medical Society of the State of New York, and the New York Obstetrical Society; formerly on the staffs of the Randall's Island Hospital, and St. Andrew's Infirmary for Women; aged 75; died, January 16, of paralysis.

Francis Marion Nesmith, Richmond, Ind.; Medical Department of Columbian University, Washington, D. C., 1893; formerly on the staff of the Southern Indiana Hospital for the Insane, Evansville, and assistant superintendent of the Eastern Indiana Hospital for the Insane, Richmond; aged 66; died, January 5.

Charles G. Crumrine, Dexter, Mich.; Chicago (Ill.) Homeopathic Medical College, 1889; formerly profesor of gynecology and rectal surgery at the Detroit (Mich.) Homeopathic College; for twenty-five years on the staff of the Grace Hospital, Detroit; aged 60; died, January 8, at Battle Creek, following a long illness.

Matthew Mann Smith ⊕ Dallas, Texas; Jefferson Medical College of Philadelphia, 1891; formerly secretary of the state board of medical examiners; at one time physician to the Texas School for the Deaf, Austin, and city physician of Austin for four years; aged 59; died, January 10, following a long illness.

Porter Campbell Layne, Ashland, Ky.; Medical College of Ohio, Cincinnati, 1894; member of the Kentucky State Medical Association; served in the M. C., U. S. Army, during the World War, with the rank of captain; on the staff of King's Daughters' Hospital; aged 53; died suddenly, January 13.

Charles Seimer Skaggs, Harrisburg, Ill.; St. Louis (Mo.) University School of Medicine, 1907; member of the Illinois State Medical Society; formerly member of the state board of health; aged 39; died, Dec. 29, 1923, of pneumonia following injuries received in an automobile accident.

John Hunt ⊕ Seattle; Yale University School of Medicine, New Haven, Conn., 1904; past president of the Seattle Sur-

⊕ Indicates "Fellow" of the American Medical Association.

gical Society; served in the M. C., U. S. Army, in France, during the World War, with the rank of captain; aged 44; died suddenly, January 2, of heart disease.

John William Stirling, Montreal, Que., Canada; University of Edinburgh, Scotland, 1884; professor of ophthalmology at the McGill University Faculty of Medicine; formerly on the staffs of the Montreal General, and Royal Victoria hospitals; aged 64; died, Dec. 11, 1923.

Noel Eusebe Guillet, Paris, France; University of Vermont College of Medicine, Burlington, 1886; formerly a practitioner in New Hampshire; served in the M. C., U. S. Army, during the World War; on the staff of the International Hospital; aged 61; died, January 10.

Roscoe Texter Kline, Pittsburgh; University of Pittsburgh School of Medicine, 1917; member of the Medical Society of the State of Pennsylvania; served in the M. C., U. S. Army, during the World War; aged 32; died, January 12, of pneumonia.

Charles Samuel Bryan, Vincennes, Ind.; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; member of the Indiana State Medical Association; aged 43; died, January 12, of a bullet wound, received accidently.

Ernest L. Bourn, Brecksville, Ohio; Medical Department of Western Reserve University, Cleveland, 1889; member of the Ohio State Medical Association; formerly city health officer; aged 60; died, January 9, at St. Alexis Hospital, Cleveland.

Charles Asher Knight ✠ Peekskill, N. Y.; Medical Department of the University of the City of New York, 1890; on the staffs of the Peekskill (N. Y.) Hospital and the Bellevue Hospital, New York; aged 60; died suddenly, January 7.

Charles Wilfred Priestley, Edgewater, N. J.; New York Homeopathic Medical College and Hospital, New York, 1907; formerly on the staffs of the Flower and Bellevue hospitals, New York City; aged 39; died, Dec. 27, 1923, of uremia.

Otto Gustav Wicherski ✠ San Diego, Calif.; Rush Medical College, Chicago, 1904; formerly county health officer; medical director of the San Diego County General Hospital, where he died, January 2, of typhoid fever, aged 47.

David King Gotwald ✠ Springfield, Ohio; University of Pennsylvania School of Medicine, Philadelphia, 1882; veteran of the Spanish-American War; on the staff of the City Hospital; aged 63; died, January 3, of heart disease.

Frederick Charles Werner, Watertown, Wis.; Rush Medical College, 1879; also a pharmacist; for many years member of the city council, and board of education; aged 66; died, January 11, of cerebral hemorrhage.

John Christopher Foley ✠ Waukegan, Ill.; Rush Medical College, Chicago, 1890; for twelve years health commissioner of Waukegan; aged 60; died, January 22, at Miami Beach, Fla., following a long illness.

Francis Andrew Underwood, Worcester, Mass.; Dartmouth Medical School, Hanover, N. H., 1895; for twenty-three years member of the school board; aged 51; died, Dec. 2, 1923, of chronic interstitial nephritis.

Thomas Jefferson Griffith, Crawfordsville, Ind.; Miami Medical College, Cincinnati, 1867; member of the Indiana State Medical Association; Civil War veteran; aged 86; died, January 6, of pneumonia.

Lorin Draper Hyatt, Perrysville, Ohio; Ohio Medical University, Columbus, 1906; member of the Ohio State Medical Association; aged 42; died, January 9, at the Massillon State Hospital, of paralysis.

Walter Sargeson Verrall, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1909; superintendent of the Toronto Orthopedic Hospital; aged 47; died suddenly, Nov. 24, 1923.

John C. S. Brice, Flemingsburg, Ky.; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1882; aged 64; died, January 9, of cerebral hemorrhage.

Robert Walter Pettit ✠ Patchogue, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1905; aged 45; died, January 8, of injuries received in an automobile accident.

Otto B. Pettijohn, Indianapolis; Indiana Medical College, Indianapolis, 1878; formerly member of the city council, and the board of health; aged 70; died, January 15, of ptomaine poisoning.

Henry Anthony Hahne, Dayton, Ohio; Medical College of Ohio, Cincinnati, 1890; formerly county coroner; formerly on the staff of the Dayton State Hospital; aged 55; died, Dec. 26, 1923.

Eugene D. Millis, Webberville, Mich.; Detroit College of Medicine and Surgery, 1891; member of the Michigan State Medical Society; aged 66; died, January 10, of heart disease.

Homer Finley Kramer, Mont Alto, Pa.; Temple University Department of Medicine, Philadelphia, 1914; aged 35; died, January 12, at the Waynesboro (Pa.) Hospital, of meningitis.

Marion Washington Buchanan ✠ Watonga, Okla.; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1906; aged 47; died, January 5.

James McMeekin McGee, Philadelphia; Jefferson Medical College of Philadelphia, 1893; also a pharmacist; Civil War veteran; aged 79; died, January 2, of senility.

Ignatius Haines, Boston; Medical School of Harvard University, Boston, 1897; member of the Massachusetts Medical Society; aged 52; died suddenly, January 16.

George Malcolm Hull ✠ Ypsilanti, Mich.; University of Michigan Medical School, Ann Arbor, 1890; aged 58; died, Dec. 30, 1923, of cerebral hemorrhage.

Norman Telford, Vancouver, B. C., Canada; University of Toronto (Ont.) Faculty of Medicine, 1909; aged 42; died, Nov. 28, 1923, following a long illness.

S. Andral Kilmer, Binghamton, N. Y.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1875; aged 83; died, January 14, of cerebral hemorrhage.

James H. Proffitt ✠ Yale, Okla.; Lincoln Memorial University Medical Department, Knoxville, Tenn., 1898; aged 52; died, January 19, of tuberculosis.

William Finlay Smeltzer ✠ Cleveland; Trinity Medical College, Toronto, Ont., Canada, 1901; aged 50; died suddenly, Dec. 29, 1923, of heart disease.

Roy Foster Karney ✠ Burlington, Iowa; Northwestern University Medical School, Chicago, 1907; aged 41; died, January 8, at the Mercy Hospital.

Bruce T. Cockrill, Bloomfield, Calif.; California Eclectic Medical College, Los Angeles, 1892; aged 71; died, Dec. 26, 1923, following a long illness.

Archie China ✠ Sumter, S. C.; Medical College of the State of South Carolina, Charleston, 1889; aged 58; was shot and killed by his wife, January 6.

Marcus Philander Chamberlain, Santa Cruz, Calif.; Homeopathic Medical College of Missouri, St. Louis, 1875; aged 74; died, January 10, of senility.

Quincy Van Hummell, Los Angeles; University of Pennsylvania School of Medicine, Philadelphia, 1864; aged 80; died, January 12, of senility.

Charles Church Harris, Baltimore; University of Maryland School of Medicine, Baltimore, 1883; also a dentist; died, January 11, of pneumonia.

Isaiah Wilton, Evansville, Ind.; Hospital Medical College of Evansville, 1883; Civil War veteran; aged 77; was found dead in bed, January 12.

James William Williamson, Hartsville, S. C.; College of Physicians and Surgeons, Baltimore, 1886; aged 64; died suddenly, January 11.

Frederick Bacon, Omaha; College of Physicians and Surgeons, Keokuk, Iowa, 1879; aged 66; died, January 10, following a long illness.

Duke Hodge, West Monroe, La.; Memphis (Tenn.) Hospital Medical College, 1906; aged 42; died, January 16, of cerebral hemorrhage.

Wilford Ervin Rucker ✠ McKinney, Texas; Vanderbilt University Medical Department, Nashville, Tenn., 1892; aged 60; died, January 5.

Thomas G. Ivy, West Point, Miss.; Louisville (Ky.) Medical College, 1871; Confederate veteran; aged 73; died, January 9, of senility.

Edward Francis Hilferty ✠ Philadelphia; Temple University Department of Medicine, Philadelphia, 1906; aged 51; died, Nov. 25, 1923.

Albert J. Murch, Cedar Rapids, Iowa; Hahnemann Medical College and Hospital, Chicago, 1863; aged 81; died, January 3, of senility.

Thomas V. Davis, Lincoln, Neb.; Lincoln Medical College, Eclectic, 1902; aged 57; died, January 1, of cerebral hemorrhage.

Mirza Yoel Yoseph, Tabriz, Persia; Medical College of Ohio, Cincinnati, 1905; aged 43; was killed by bandits, recently.

Correspondence

"HOSPITAL COSTS"

To the Editor:—Dr. Herman Smith's article in THE JOURNAL, January 12, was timely and to the point. However, I feel that the subject is one of such vital interest that a further discussion might lead to a more general desire to reduce increasing cost per day, per patient, for the hospitalization of the sick and injured.

It would seem that the combined intelligence and experience of those who have given at least ten years as medical directors or superintendents of such institutions could be used to good advantage in this emergency, which resolves itself into a very grave situation and one which bids fair to endanger the whole future of this field of work in our public life.

The reason for suggesting that men with an experience of at least ten years could do much toward solving many of the problems of today is that they have the decided advantage of being able to compare the most amazing changes which have taken place in that time, and determine their relative values. It would seem that where there are as many fixed problems as there are in institutional life, more uniformity might be worked out in the administrative departments as well as in the medical department.

A striking illustration of the lack of uniformity and the necessity for it is contained in the November report of the daily cost per capita, per patient, in the forty-five Veterans' Bureau hospitals, which ranges from $3.56 to $12. It is understood that we cannot expect to run on prewar rates, but there is a happy medium even now. If patients were getting enough better care and better results to warrant the increased cost, we would not question it; but they most decidedly are not. The tuberculous patients, in particular, would get just as good results in any nice steam heated boarding house. Perhaps it is not fair to include the Veterans' Bureau hospitals in this discussion as they have the worst of all handicaps, that of being controlled entirely by politics—a problem that should never be allowed to interfere in the care of the sick.

In the last twenty years, the increase in the number of hospitals and sanatoriums in the United States has been almost inconceivable. There has been an increase from 115 institutions with 8,000 beds to 667 sanatoriums with 66,000 beds for tuberculosis alone, and this is only a small part.

I have had occasion to inspect several large institutions in the last few months—I have had an experience covering twenty-two years and am not giving any snap judgments. Experience teaches us that "many a mickle makes a muckle" and that there is all the difference in the world between stinginess and thrift. The proper application of thrift merely adds to general efficiency, and one should never lose sight of the fact that the hard earned money of the great mass of people pays the bills. There are many leaks in common which may occur in any institution, no matter how well it is organized and equipped.

All institutions have common working parts; there is a certain routine that has to be performed day after day, and every minute or bit of material that can be saved lowers the per capita cost of maintenance. The present tendency is toward overloading the personnel, and this is done to the extent that there are many institutions in which the help outnumber the patients.

Many superintendents, both experienced and inexperienced, take the stand that their own institutions are perfect, and they will give all kinds of excuses for high costs. A few questions will bring out the fact that they are not in close touch with their heads of departments, and that "responsibility" in these departments is not sufficiently fixed. At the present time, no one from the superintendent down seems to care for the expense.

Heads of departments should be very carefully chosen. Their integrity, ability to handle help and general efficiency in organizing their departments should be taken into consideration, and they should be held responsible for results. The word of encouragement should be given as freely as criticism when it is merited, and the superintendent should hold a meeting of the heads of all departments at least once a month and review the cost and efficiency of the work, bringing about better cooperation between departments and getting suggestions for improvement.

Next to the administrative department comes the medical department, the personnel of which is frequently overloaded. Ward surgeons and interns are not apt to think of economy. An institution with a capacity of 268 patients, recently visited, had thirteen medical men with complete maintenance for them and their families. Ten physicians would have been ample, and then they would have averaged only twenty-six patients. The employment of three extra men in this case means a waste of at least $1,000 a month or $12,000 a year—12 cents per capita daily per patient, provided the institution is running at full capacity.

The same holds true in the nursing department. Much depends on the head nurse and her ability to organize her force. It recently happened that sixteen bed patients were scattered over a large institution, and eight nurses were hot footing it from one to the other and then complaining of overwork. It was found that, by bringing all the bed patients together in one ward near the diet kitchen, one nurse could be cut out, saving $100 a month; and no one was overworked.

The greatest leaks, however, are not in the administrative, medical and nursing departments but in the kitchens, dining rooms, engine rooms, diet kitchens, laundries, etc., where great quantities of material are handled which in the aggregate constitute the greatest waste.

Just here let me call attention to the fact that in most communities in which hospitals and sanatoriums are located, Main Street seems to think that they are plums for its especial benefit, and the tradespeople vie with one another to see who can get the most out of them. The chef is the vulnerable point of contact if he does the buying, and by smokes, drinks and various concessions commits himself to the proposition of winking at irregularities in weights, prices, etc.

The only way to get around this situation is to employ a buyer, preferably a woman who has been a thrifty housekeeper in the first place and has had some insight into the details of institution work, which is really housekeeping on a large scale. The right kind of a woman is not liable to be approached by those who want a "rake off." She should be provided with triplicate order blanks numbered, one of which should go to the merchant who receives the order, one to the office at the institution, and one to the storeroom where all supplies should be delivered, weighed, checked in and kept under lock. The requisitions for supplies should be handed to the storeroom keeper by the heads of departments the night before they are wanted for use, and checked out the first thing in the morning. This obviates the possibility of having materials disappear over night, and removes the necessity of having a constant attendant in the storeroom.

It is the easiest thing in the world for those who desire to do so to make way with supplies from toothpicks to blankets, and eternal vigilance is necessary on the part of the entire organization.

Few superintendents have the ability to build up an institution morale for responsibility and accountability. The superintendent should insist on keeping the number of his personnel

down to the standard. The chef is a very important person, and should be carefully selected and well paid and held strictly accountable for his department. The last but by no means least of his duties is to sit on top of the garbage can.

Most modern kitchens are well equipped, and the personnel consists of the chef, the second cook, the pot washer, two or three helpers, and two dishwashers. This will vary slightly according to the size of the institution, but eight, all told, can care for a very large institution, including bake shop and pastry. There are frequently several extra hands in the kitchen who could be eliminated at a great saving.

Some institutions pay from $25 to $30 a month to have the garbage hauled away, and others sell it to hog raisers for a good price. The grease that accumulates in the kitchen can easily be converted into soap for cleaning purposes. A definite contract should always be entered into with the milk man in regard to the quantity and quality of the milk and cream. Frequent tests should be made in the laboratory to see whether the contract is being filled properly. A recent check on the milk in a 100-bed hospital found shortages in butter fat amounting to $3 a day, or $1,095 a year.

It frequently happens that the kitchen and dining room crews lose all sense of values, being accustomed to handling large quantities of material, and a little vigilance on the part of the head of the department will change a loss of hundreds of dollars into a saving of hundreds of dollars.

The engine room is another place where waste can be cut down. If it is a case of lump coal versus mine run, lump will usually come out on top; or if, as in some states, oil can be purchased at the right price, it is preferable and constitutes a great saving. A check on weights should always be taken, and in many institutions the fires can be banked from 10 p. m. to 4 a. m., saving tons of coal.

Electric current is used like rain water in some institutions, day and night, especially in the government and state hospitals—no one cares. Even if the electricity is made on the place it costs money, usually about 3 cents a kilowatt and, when bought, above 8.5 cents. In one sanatorium the electric light figured 13 cents per patient daily, or $295 a month. A survey was taken, some lights were eliminated, some were changed for lesser power, and all bulbs were placed in the hands of the engineer, who was instructed not to give one out unless the old one was brought back and given in exchange; thus, a cut of $100 a month was made in the light bill. This will be increased when a switch in the boiler room enables the engineer to turn off the current entirely at certain times a day and turn it on only in special places when ordered by telephone.

So far I have mentioned only expendable property; but a great deal of improvement can be made in most institutions in regard to nonexpendable property, such as bedding and linen. The army plan is the best one: Patients and employees sign duplicate order blanks for the property needed and received from the property custodian, and each one keeps a copy. In this way they are held responsible to return all they receive. Unless some such system is followed, sooner or later when an inspector or auditor comes, there is trouble, and hundreds of blankets and linen galore are missing and the superintendent is held entirely responsible and often discredited, even though he may not have been intentionally dishonest. So much for the common leaks in the average institution which all help to raise the per capita cost.

When questions of items of cost are asked of the average superintendent, he will call the bookkeeper, a layman, who is purely a bookkeeper and not interested in items of economy, and even if he does see leaks he hesitates to suggest them to the superintendent. The items of information that one receives are detached, and usually one is not much better off than he was before he inquired.

I found that I must have the whole thing in a nutshell, as it were, and while medical director and superintendent of the Modern Woodman Sanatorium at Colorado Springs, I figured out a very simple system of analyzing our per capita cost each month. We divided the per diem cost into departments, and by the fifth of the month the bookkeeper had his usual entries made; by transferring the kernel of the whole bookkeeping department to a card with the other months for comparison, we could visualize at a glance any department that was out of line with its previous record. A card will carry a two years' record, and a study of it will lead to endless savings in an institution, all of which affect the per capita cost. The superintendent should have these reports on his desk not later than the tenth of every month.

A great deal could be accomplished in every institution by a careful survey by an expert who had no entangling alliances in the institution, and his suggestions could be gradually worked out by the superintendent without any embarrassment. First, however, there must be a very sincere desire for improvement. Sooner or later there will be an accounting, and unless these expensive institutions can justify themselves for being in existence, they will be eliminated and will literally have fallen of their own weight.

John E. White, M.D., Sulphur, Okla.

AID FOR GERMAN PHYSICIANS

To the Editor:—The news that the medical profession of the United States has instituted a widespread campaign to secure funds to aid their suffering colleagues in Germany will cause great joy and arouse a deep feeling of gratitude in the circles to which succor will be extended.

The suffering among German physicians has reached an acute stage. They are members of the educated middle class, which has been particularly hard hit by the financial depression. The more elderly among them have lost the savings accumulated by a lifetime of hard work, and they are exposed to the bitterest need just at the time when old age, sickness and loss of earning power make the struggle for existence especially hard for them and their families. The physicians who, before the war and the revolution, had a good practice and many well-to-do clients, have lost that practice because their former clients have become impoverished and cannot afford to engage a physician in case of illness. Many consider themselves lucky if even one or two patients cross their threshold during the day, and some are compelled to work at any job they can find in order to eke out a living. The majority of the physicians—particularly the younger men—were dependent on the capitation fees received from the members of the *Krankenkassen*, and the beneficent effect of this compulsory form of health insurance, as applied to the working classes, has contributed in a marked manner toward raising the standards of health among the whole people; for example, the mortality from tuberculosis had been reduced one half. Now the health insurance societies have become practically bankrupt, and it is doubtful whether they will recover in a measure their former functional capacity. In the nature of the case, the medical profession suffers, since its members receive little or no pay for their work and thus are forced to swell the ranks of the educated proletariat. The distress is great also among students and among recent medical graduates, since they are unable to find any openings whereby they can practice their profession. All of the sum that is collected in American medical schools is devoted exclusively to the aid of the students.

The plan to turn over to the medical laboratories doing research work a certain proportion of the sums collected is praiseworthy, as research work is lagging for want of funds. The central government formerly supported these research

laboratories generously, but is now no longer able to do so, and the activities of the laboratories are greatly impaired. However, it would seem to me advisable to give up, for the time being, the idea of helping the research laboratories, lest the sums available be too much scattered, and to use all the money collected for the alleviation of physical distress. I agree entirely with the view expressed by Richard Pearce of the Rockefeller Foundation when he stated that "the present problem may develop into actual feeding and clothing rather than one of supporting scientific work, and assistance of scientific work may have to be set aside for the time being." In accordance with this view, the Rockefeller Foundation in its praiseworthy work has confined itself to assisting the younger generation of laboratory workers by the bestowal of money grants and fellowships instead of furnishing funds for improved laboratory equipment.

While the material assistance given by American physicians to their suffering German colleagues will be received with the warmest gratitude, I think that this evidence of genuine brotherly love will derive still greater importance from another angle. The campaign of the American medical profession will arouse, as did also the gifts that were received last year, among the educated classes of the German people the feeling that in the United States more friendly and more just sentiments toward the tormented German people have been aroused, and that beyond the Atlantic Ocean bonds of friendship have been reawakened which before the war linked together the scientists and physicians of the two nations. To our delight, we find on the committee of American Aid for German Medical Science the names of a number of distinguished men whom we count with pride as the friends and, in part, as the pupils of German science, and to them especially we feel grateful for this altruistic work, which cannot fail to bridge the way for a better mutual understanding. A clear comprehension of the actual sufferings of the German medical profession and of the depleted conditions obtaining in the medical institutes of research, and likewise the desirable goal of a resumption of friendly relations between Germany and America, will be best furthered if American physicians will again, as in former years before the war, decide to cross the ocean and view with their own eyes the condition of things in Germany. They will be received in Germany as friends, and will be given the rewards that their proofs of friendship merit.

F. MÜLLER, Bavariaring 47,
Munich, Germany.

"AN EXPEDIENT TO CONTROL EPISTAXIS"

To the Editor:—In THE JOURNAL, January 19, Dr. J. G. Levine of New York describes a method of stopping epistaxis by means of a finger cot into which gauze is packed, after the former is placed in the nose. Let me say that I am glad he has called attention to this little measure, which I have been in the habit of using for the last fifteen years; in fact, during all this time, a package of finger cots has been an essential part of the armamentarium carried in my grip. I have also during this time been teaching this method to the students at Rush Medical College, using a finger cot with petrolatum on the outside so that it will not stick, and filling it with cotton, which I believe gives a more elastic pressure than gauze. Until a few years ago, I also used this method after septum and other operations in the nose instead of the ordinary packing, as the lubrication of the finger cot permits its removal the next day without any bleeding. The insertion of cotton into the finger cot seems to me to be even simpler than gauze, as no apparatus at all except an ordinary dressing forceps is needed, and gives, as stated before, a very elastic pressure.

ROBERT SONNENSCHEIN, M.D., Chicago.

To the Editor:—Reading in THE JOURNAL an article on "Control of Epistaxis," I have a method I find very good in country practice, in controlling nasal hemorrhage, as well as hemorrhage in the pharynx. I take a condom, lubricate it with petrolatum, and, inserting a nasal applicator, push it back through the nasal aperture, then remove the applicator, and inflate the condom with the bulb of a Tycos sphygmomanometer or by mouth to the desired pressure, having an assistant or one of the family tie it off close to the nasal aperture.

Removal of the condom is simple by puncturing it with a needle or any sharp instrument and slipping it out. This method works fine with nervous children, as it takes only a minute to do it.

RAYMOND JOHNSON, M.D., Worthington, Ind.

To the Editor:—With reference to the note on this subject in THE JOURNAL, January 19, it will be found easier and far more effective than gauze packing simply to place two or more Bernay's sponge splints inside the previously lubricated finger cot, which is then introduced with nasal dressing forceps, or with the fingers if forceps are not at hand, into the nasal orifice from which comes the hemorrhage. A drop or two of hydrogen peroxid or sterile water on the ends of the splints causes them to expand rapidly, filling the nasal passage with a firm, even pressure, which will not only quickly stop bleeding in Kiesselbach's area, but farther back and upward, if needed. While, no doubt, this maneuver is known to many rhinologists, it is at once so neat and simple in its effectiveness that every physician should know of it.

It is needless to say that any dressing which interferes with nasal aeration and drainage to a greater or less extent should be removed just as soon as it is safe to do so, as otherwise sinus or aural complication may be set up by this blockage of nasal ventilation and drainage.

J. B. H. WARING, M.D., Blanchester, Ohio.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ANTITYPHOID INOCULATION

To the Editor:—1. What technic has been approved for typhoid and paratyphoid inoculation in regard to the interval between the three doses; what is the minimum and maximum number of days that can elapse between the first and second, and second and third dose? 2. What is the duration of the protective period that the vaccine gives? I recently had a case in which the patient died of typhoid fever seventeen months after inoculation. 3. Is it quite essential for such vaccine that it be kept cool for preservation? Can one carry the vaccine with him for several weeks without keeping it on ice? 4. Any bibliography you can give me on the subject will also be appreciated.

J. G. VAUGHAN, M.D., New York.

ANSWER.—1. Ordinarily, from seven to ten days. It is said that if the interval is less than seven days, the immunity may be less than after longer intervals. It is asserted also that the maximum response follows when the intervals between the injections are lengthened to eighteen or twenty days. At this time, no definite statement can be made as to what the optimal intervals really are; experience with antityphoid vaccination so far is based on the seven to ten day interval.

2. Immunity after antityphoid inoculation is not absolute. Introduction of typhoid bacilli, lowered states of general health, or large doses of infectious material may result in typhoid infection in inoculated persons. Army medical officers express the opinion that immunity from inoculation begins to decline in from two to two and a half years; but even after four and five years, the typhoid rate of inoculated troops has been estimated at about one-fourth that of uninoculated troops.

3. Undoubtedly, typhoid vaccine carried about by a person for several weeks without keeping it on ice will retain antigenic properties. It is the general opinion that antigenic

deterioration proceeds more slowly in the icebox than at room temperature.

4. A good consideration of the whole subject, with references to the literature in general, is given by Kolmer: Infection, Immunity and Biologic Therapy, Ed. 3, 1923, pp. 792-800.

THE OLD CHINESE MEDICAL FABLE

To the Editor:—I have often noticed the statement that the Chinese pay the physician when they are well and do not pay him when they are sick. I have also seen this statement contradicted and should like to know whether or not there is any truth in it.

W. E. NICELY, M.D., Waukesha, Wis.

ANSWER.—It is not the custom of the Chinese to pay their physicians when they are well, and not to pay them when they are ill. Isolated cases of such practice may exist, as they may exist in any country, but it is not the prevalent custom to follow such a course.

WHEN IS GONORRHEA CURED?

To the Editor:—Your reply to the query of Dr. B. C. Marantz on this subject (THE JOURNAL, January 12) may lead, I believe, to premature pronouncement of cure, in that it lays stress on the finding of gonococci as the only evidence of persistence of infection. This is common teaching and is fallacious. When an acute inflammation of the prostate or seminal vesicles subsides, the expressed secretion under the microscope usually shows a field crowded with pus cells with but little, if any, of the elements of the normal secretion. When the smear is dried and stained, no organisms are found, but the presence of abundant pus is sufficient to indicate presumptively their persistence in the tissues. With the natural history of the gonococcus in mind, particularly its tendency to sequester, to disappear from the secretions only to return again under favorable conditions, I believe the absence of pus from the secretions is therefore a far more dependable criterion of cure than the one suggested by you. For this purpose specimens are best examined in the fresh state without drying. It is, of course, understood that the provocative test which you mention and which I do not consider reliable causes a purulent exudate from chemical irritation alone.

MELVILLE SILVERBERG, M.D., San Francisco.

CRAMPS IN THE LEGS AND FEET

To the Editor:—In THE JOURNAL, January 12, I note an inquiry from F. J. Q. relative to cramps in the legs and feet. You say: "More rarely they are due to a disease of the nervous system." In my experience, such cramps are more frequently due to a sciatic irritation or neuritis than any other cause. Whether the case is a true neuritis or a perineuritis it matters not, so far as symptoms are concerned, for often it is only an irritation rather than a true inflammation. As proof of this, treatment directed to the sciatic notch and other points of irritation gives prompt relief. I have seen many cases and have been myself a victim, so that I feel that I can speak with authority. My practice is to treat such with the static wave current applied to the areas involved, together with some active method of producing hyperemia.

WILLIAM MARTIN, M.D., Atlantic City, N. J.

TREATMENT OF LICHEN PLANUS

To the Editor:—What is the latest and best treatment for lichen planus? I have a case that I have treated with yellow mercuric oxid and also with arsenic sulphid, without success. I have used ointments at the same time.

A. H. DE LANO, M.D., Lone Tree, Iowa.

ANSWER.—Lichen planus can usually be successfully managed by the intramuscular injection of some preparation of mercury. Mercuric chlorid is commonly employed in the dosage of 0.015 gm. (one-quarter grain) twice weekly. A 1 per cent. solution of this drug in physiologic sodium chlorid solution is prepared, and 15 drops is injected at the first dose, 20 the second and subsequently 25 at each injection. From eight to sixteen injections are commonly sufficient to clear up the disorder.

Local measures for relief of itching may be employed at the same time. A good oily application to fulfil this requirement may be made of: coal tar solution, 15 c.c.; black lotion and olive oil, of each sufficient to make 250 c.c. This is usually applied twice daily.

SPECIAL MEDICAL TELEPHONE SERVICE

To the Editor:—Can you give me any information regarding provisions made for physicians by telephone companies in other cities? I understand that in some cities the telephone companies provide a special operator whose duty it is to keep track of the physicians in the city, so that, if one of them is to be away from home, he simply calls this operator and leaves the number at which he can be found. Can you tell me any cities in which this provision is made, and give any information which might be useful in inducing a company to introduce such a system?

———, M.D., North Dakota.

ANSWER.—THE JOURNAL will be glad to have information on this subject. Address the editor.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

CALIFORNIA: Los Angeles, February 18-20. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

CONNECTICUT: Hartford, March 11-12. Sec., Reg. Bd., Dr. Robert Lee Rowley, 79 Elm St., Hartford.

CONNECTICUT: New Haven, March 11. Sec., Eclec. Bd., Dr. James E. Hair, 730 State St., Bridgeport.

CONNECTICUT: New Haven, March 11. Sec., Homeo. Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

KANSAS: Topeka, February 12. Sec., Dr. Albert S. Ross, Sabetha.

MAINE: Portland, March 11-12. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, March 11-13. Sec., Dr. Charles E. Prior, 144 State House, Boston.

NATIONAL BOARD OF MEDICAL EXAMINERS: Written Examinations in Class A Medical Schools. Part I, February 13-15, 1924. Secretary, J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia.

NEW HAMPSHIRE: Concord, March 13-14. Sec., Dr. Charles Duncan, Concord.

VERMONT: Burlington, February 12. Sec., Dr. W. Scott Nay, Underhill.

WYOMING: Cheyenne, February 11-13. Sec., Dr. J. D. Shingle, Cheyenne.

District of Columbia October Examination

Dr. Edgar P. Copeland, secretary, District of Columbia Board of Medical Supervisors, reports the oral and written examination held at Washington, Oct. 9-11, 1923. The examination covered 16 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 19 candidates examined, 16 passed, and 3 failed. Nine candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown Univ. Sch. of Med.	(1921)	86.5, (1923, 2)	84.7, 86.1
George Washington Univ. Med. Sch.	(1923, 3)	85.6, 86.5, 87.5	
Howard University School of Medicine	(1920)	75, (1922, 2) 82.1, 82.3, (1923, 2) 78.5, 81.5	
Medical College of Indiana	(1904)		78.7
University and Bellevue Hospital Medical College	(1916)		80.6
Medical College of Virginia	(1917)		75.8
McGill University Faculty of Medicine	(1923)		91
University of Frankfort-on-the-Main, Germany	(1920)*		84.6

College	FAILED	Year Grad.	Per Cent.
Howard University School of Medicine	(1921)		69.1
College of Physicians and Surgeons, Boston	(1923)		71.3
St. Louis College of Physicians and Surgeons	(1922)		56.5

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
George Washington University Medical School	(1916)		Penna.
State University of Iowa College of Medicine	(1882)		Iowa
Johns Hopkins University Medical Department	(1920)		Maryland
Maryland Medical College	(1912)		Iowa
University of Maryland	(1920)		W. Virginia
Medico-Chirurgical College of Philadelphia	(1916)		Penna.
Meharry Medical College	(1890)	Mjssouri, (1898)	Louisiana
University of Virginia	(1916)		Virginia

* Graduation not verified.

South Carolina June Examination

Dr. A. Earle Boozer, secretary, South Carolina State Board of Medical Examiners, reports the oral and written examination, held at Columbia, June 26-28, 1923. The examination covered 17 subjects and included 90 questions. An average of 75 per cent. was required to pass. Thirty-three candidates were examined, all of whom passed. Three candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Cornell University Medical College	(1922)		89.7
Jefferson Medical College of Pennsylvania	(1923, 2)	94.5, 97.1	
Medical College of the State of South Carolina	(1900)	(1923, 24) 79.3, 81.3, 83.2, 83.5, 83.7, 85.3, 85.3, 85.6, 85.8, 86, 86.2, 86.6, 87.1, 87.5, 88.2, 88.2, 88.6 88.6, 88.8, 88.8, 89.2, 90.6, 91.1, 91.8	76.2,
Meharry Medical College	(1907)	80, (1923, 2)	75, 75
University of Nashville, Medical Department	(1908)		78.8
University of Virginia Department of Medicine	(1923)		90

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Georgia Medical Department	(1921)		Georgia
University of Virginia Department of Medicine	(1902)		W. Virginia
Emory University School of Medicine	(1921)		Georgia

Social Medicine and Medical Economics

THE CONTRIBUTION PHYSICIANS HAVE TO OFFER TO HEALTH EDUCATION

HAROLD K. FABER, M.D.
Professor of Pediatrics, Stanford University School of Medicine
SAN FRANCISCO

Any proper program of health education must embody two interdependent functions, one educational, the other medical. The purpose of the first of these is to transfer into conduct the principles of healthful living; the second is to remove the obstacles in the way of healthful living.

It is obvious to the unbiased observer that man's battle against disease and unfavorable environment in general is and will indefinitely continue to be active and unceasing, that casualties will occur and must be cared for, and that it is the physician who must meet this problem. It is through recognition of the potentialities of foresight, not only in prevention of disease but also in its early diagnosis and treatment, that the great advances and improvements in public health of recent years have been attained, bringing about a new attitude of hopefulness toward the health of future generations. There has at times been noticeable among the more optimistic a tendency to regard the battle as practically won, to consider that healthful living of itself will insure health. This is, unhappily, not true. Battles were never won by underestimating the enemy. It is the physician's task—unpopular at times—to gage the enemy's strength and to study his attack.

In the health educational movement the physician, and particularly the pediatrician, has two chief functions and means of usefulness. The first and more general one is to advise and direct the content of the teaching program so far as it deals with matters of physical welfare. It is only on his expert knowledge and experience that a sound superstructure of instruction can be built. This should apply not only to the initial program but also to its whole course of expansion, development and inevitable alterations. Constant medical supervision is and will be needed to prevent faddism and faults of emphasis, and to make available to the teacher at the earliest moment new discoveries and improvements or changes in medical science. Unnecessary and harmful to the attainment of the ultimate object of improving the health and happiness of the community through the child is the too frequent antagonism between departments of health and departments of education. No program will be successful that does not build on a firm foundation of cooperation between these two primary agencies so largely in control of the lives of children. Such cooperation is and should be a matter of spirit rather than of machinery—a spirit of willingness and eagerness to work together toward a common end. In San Francisco a joint committee of the board of health and the board of education, formed a year or so ago to discuss common problems and formulate recommendations, provided not only a symbol of the desired spirit of cooperation but also a practical means of solving the problem.

The second and more particular function of the physician in detecting, eradicating and preventing disease also calls for the closest cooperation with the educator and her associates. The prime essential of effective control of disease is its early recognition, and here the teacher is in a peculiarly advantageous and responsible position. In daily continuous contact with her charges, familiar as she is with their usual and normal behavior, she, better than any one else, excepting perhaps the parents, can detect at the earliest moment those deviations from the normal which are the first indications of disease.

It is through the alertness of the teacher in this respect and from the story told by the scales and measuring tape that the physician can make a great contribution to the health of childhood. It is here that he must be used. The observing teacher or school nurse can note the outstanding symptoms of faulty vision, impaired hearing, postural defect, adenoids, severe anemia, St. Vitus' dance, lameness, heart disease, diabetes, epilepsy, feeblemindedness, incipient tuberculosis and insanity. She may well realize the possible seriousness of the symptoms, but it is only the physician who can interpret them truly, for symptoms themselves may mean little or much. Faulty vision may mean slight deformities of the lens of the eye, or it may mean congenital syphilis; deafness may be due to accumulation of wax or to middle ear infection; postural defects may come from the need of glasses or from infantile paralysis of the trunk muscles; a child may make faces from imitation or habit or from a serious rheumatic infection associated with severe heart disease; he may limp because he has a nail in his shoe or because he has tuberculosis of the hip joint; he may have fits of absent-mindedness because he is putting up a radio set at home or because he has incipient epilepsy; he may be dull because he is deaf or because he has a defective brain.

Finally, to consider malnutrition—the most common and generally recognizable symptom of disease or disorder. Children may be underweight or pathologically malnourished for an enormous number of diverse reasons, ranging from incorrect habits to the most severe chronic disease. While the correct diagnosis in any individual case of any of these conditions calls on the knowledge and investigative resources of all the auxiliary agencies—teacher, nutrition worker, visiting nurse—the final burden rests squarely on the physician. He alone has the skill, experience, trained scientific accuracy and judgment that correct diagnosis, so vitally important to the child, demands. This leads me to the statement with which I think every fair-minded person will agree, that every child with whom there is something wrong that indicates the possibility of disease should at once have a careful and most thorough physical examination, with such of the laboratory aids to diagnosis as may be advisable in his case. There is too much unintelligent opposition to this in the minds of the lay public. It is often looked on as something to be avoided instead of as a valuable privilege. At present in San Francisco it is difficult for school physicians to accomplish more than a visual inspection, with auscultation through the clothes. No proper and complete examination can be made without the clothes removed to the waist, but there is no valid reason why this cannot be done with all consideration for modesty and propriety in the school when necessary, and of course in the physician's office or in the clinic. Parents readily give their consent when the thing is explained or taken as a matter of course. The good that can be so accomplished is truly enormous, and the effectiveness of the physician for good is certainly quadrupled.

Further than this, the physician can perhaps make his greatest contribution to a child health program when the public is educated to the need of having children examined regularly once, or better twice, a year, even in the absence of symptoms of disease. Many mothers bring their babies to the physician regularly for inspection and health advice, and school children receive at least a certain amount of attention. But in the ages between, very little is done, with the result that large numbers of children enter school at the age of 6 with various defects, many far advanced. The public does more in this kind of prevention dentally than medically, which indicates what can be accomplished by the proper sort of education.

The truth is that the public has the fear of medical examination which is born of ignorance. This ignorance can be overcome by education, and when it is overcome the physician

will be free to make the contribution to health which is now within his powers. The place to overcome it is largely in the schools, where the coming generation is being given its ideas and ideals, and this is to my mind one of the great services to the commonweal which health education can perform.

COCAIN AND ITS SUBSTITUTES

Cocain is probably unsurpassed purely as a local anesthetic, for the rapidity and intensity of its action; but its instability and the susceptibility of patients to its toxicity are distinct disadvantages. The toxicity of cocain, however, appears to be less than is frequently asserted. In fifty fatal cases ascribed to cocain as a local anesthetic, and very many more nonfatal accidents, Eric Watson-Williams (*Brit. M. J.* **2**:1018 [Dec. 1] 1923) found four fatal cases wrongly charged to this drug. The time and onset of symptoms, and the appearance after death did not correspond with cocain poisoning. The other forty-six cases included all in which death was ascribed in some way to the use or abuse of cocain as a local anesthetic. Death was due in thirteen of these cases to a large dose by the mouth, which in eight averaged 22 mg. per kilogram of body weight. Six patients died after subcutaneous injection, and in five there was a definite overdose, 20, 19, 17, 12 and 8 grains (1.3, 1.2, 1.1, 0.8 and 0.5 gm.), respectively. There were twelve fatal accidents following injections for tonsil operations in adults, and in four a 20 per cent. solution was mistaken for a 0.2 per cent. solution, the victims receiving 100 times the intended dose. In four others the dose was not known. It seems unbelievable in the other four cases that the injected cocain caused death alone. The doses were one-fiftieth grain, one-fifth grain in epinephrin 1:1,000, and one-fourth grain in epinephrin 1:1,000, and the dose of injected epinephrin in each instance was too large to be safe. If the fauces were painted before injection in these tonsil cases (and this was not mentioned), the cocain absorbed may have largely exceeded the dose given. It is noteworthy that injections for tonsil operations account for a number of fatal accidents, and it is possible that painting before injection has received too little attention.

Dental injections were twice fatal, and the doses used were unknown. Two grains (0.13 gm.) and less caused a number of dental accidents. Vascularity and possibly injection under pressure appear to have been factors in many accidents with cocain in acute inflammatory conditions. In one series, the serious accidents all occurred when 10 per cent. or stronger solutions were used. An injection of 1.5 grains (0.1 gm.) in one case for rectal fistula operation caused death in four minutes. In a recent hydrocele, 6 grains (0.4 gm.) in 5 per cent. solution was injected. The dose was considered "feeble" and safe, but absorption through an unthickened tunica was rapid and the patient died. Injection into the recently wounded urethra killed three. The doses were 3 grains (0.2 gm.), 2½ grains (0.16 gm.) and 1 grain (0.065 gm.). Death in a few minutes followed the injection of 22 grains (1.4 gm.) in the rectum, and the surgeon committed suicide. The application of 4 per cent. solution to abraded skin caused death in a few minutes, and four fatal accidents followed applications to the fauces. The doses in these cases were known.

To summarize fifty reported fatalities, four were not due to cocain, thirteen followed oral ingestion, twelve followed known overdoses, twelve followed doses unknown, and nine followed doses stated to be less than 5 grains (0.3 gm.). In the last class, the essential factor appeared to be that the drug entered the circulation very rapidly, for in eight death was rapid.

From this analysis the author infers that fatal poisoning from clinical doses of cocain is rare, and that "idiosyncrasy" to cocain in this sense has not been established. The lethal dose of cocain for man by subcutaneous injection or by mouth appears to be between 12 and 25 mg. per kilogram, depending on the concentration. The same dose of cocain in strong solution is much more dangerous than in weak solution. For ordinary subcutaneous injections in 0.25 per cent. solution, especially with epinephrin, the old "maximum" dose of 3 grains (0.2 gm.) should be safe. Accidents with cocain have become less common since epinephrin has been used, but the injection of strong epinephrin into vascular tissue is in itself a source of danger.

Many surgeons have discarded cocain for substitutes supposedly less toxic, but it must be remembered that fatalities and severe accidents have occurred with all substitutes of cocain that have been extensively used. In the preliminary report of the American Committee on Toxicity of Local Anesthetics, four deaths are ascribed each to butyn and apothesin, three to novocain, one to alypin, one to stovain, and others to combinations of butyn and novocain with cocain.

An experimental investigation was also undertaken in which the comparative toxicity of local anesthetics was estimated by determining the minimal lethal dose of each drug by subcutaneous injection. Considering the toxicity of cocain as 1 and expressing the experimental toxicity of substitutes of cocain as a fraction, butyn was found in the rabbit to be ¼, novocain ⅛, stovain ⅕, and alypin 1 minus. In experiments with mice, the comparative toxicity of butyn was 2, novocain ⅛, stovain ⅙, and alypin ¾; with guinea-pigs, butyn was ¾, novocain 1/11, and alypin ⅔. Butyn appeared to be as toxic or rather more toxic than cocain in the hands of four independent workers, and there was evidence that its toxicity is less reduced with weak solutions than is the toxicity of cocain; in other words, its relative toxicity is greater. Reports of five deaths after using butyn were received, two in resections of the septum (a 5 per cent. solution on a tampon was used), two in tonsil operations (a 0.25 per cent. solution was injected; there was no evidence of overdose; cocain was painted on the fauces in one case) and one in which there was a definite overdose. Caution therefore is required in using butyn.

REPORT ON NARCOTICS

In the report of the Commissioner of Internal Revenue for the year ending June 30, 1923, just received, it is stated that 410 persons were registered under the Harrison Narcotic Law as importers and manufacturers, 2,256 as wholesale dealers, 45,356 as retail dealers, 147,891 as practitioners, and 90,492 as dealers and manufacturers of untaxed narcotic preparations. During the year, 6,450,605 ounces of imported taxable narcotics was withdrawn from the customs custody for domestic consumption, which, added to the amount (2,312,695) in the possession of manufacturers, July 1, 1922, made a total of 8,763,300 ounces. Manufacturers exported 9,800 ounces of this supply or of drugs derived therefrom, and 2,393,844 ounces of like description was sold by them to domestic purchasers, leaving a total of 5,017,652 ounces with the manufacturers, June 30, 1923. An aggregate of 6,180,582 ounces of narcotic drugs was imported during the year, which was an increase of 3,480,706 over the previous year. During the same period, 13,683 ounces was exported, a decrease of 26,430 ounces over the previous year. Officials of the federal, state, county and municipal governments and institutions, who are exempt as such from registration and payment of tax under the Harrison Narcotic Law, purchased a total of 9,398 ounces of narcotic drugs contained in stamped packages, amounting to 83,606 taxable ounces. A total of 8,678 ounces of narcotic drugs and preparations came into possession of the government during the year through enforcing the laws, which was a decrease of 62,473 ounces over the previous year. There were 4,194 convictions under the internal revenue narcotic laws for which sentences aggregating 4,692 years and fines amounting to $291,690.46 were imposed. The general attitude of the courts toward violators is reflected in the fact that the number of convictions during the year was larger by 1,050 than for the previous year. Penalties were assessed during the year (Section 3176, revised statutes as amended) against 29,776 registered persons for failure to register and pay special tax as required, and 1,572 violations of the law were reported which involved other charges of greater significance. A total of 8,683 violations accrued during the year against unregistered persons, and 33,268 violations of all kinds against registered persons. Of the unregistered persons charged with violations, 3,953 were convicted, 1,093 cases were dropped, and 3,366 cases were pending at the close of the year; of the

cases against registered persons, collection of special penalty was made in 29,776 cases, 241 persons were convicted, thirty were acquitted, 452 cases were dropped, and 2,035 cases were pending at the close of the year. The number of agents and inspectors in the narcotic field force averaged 176 for the year. The collections under the narcotic laws were $998,197.41, a decrease of $270,842.49 over the previous year.

Book Notices

PIERRE CURIE. By Marie Curie. Translated by Charlotte and Vernon Kellogg. With an introduction by Mrs. William Brown Meloney, and autobiographical notes by Marie Curie. Cloth. Price, $2.25. Pp. 242, with 7 illustrations. New York: The Macmillan Company, 1923.

The father of Pierre Curie was a physician, and the son of a physician. For this reason, if not also for the fact that the great application of the discovery of radium has been in medical science, physicians should have special interest in the life of Pierre Curie. Moreover, the value of the biography is enhanced by the fact that it is written by Madame Curie, who shared in the great discovery. Curie was educated at home by his parents and under private tutors. Nevertheless, he made such rapid progress in mathematics and physics that he was made a bachelor of science at the age of 16 years. His later education was under the best scholastic auspices in France. Madame Curie relates each step in the progress of his scientific investigations. When he became director of laboratory work in the School of Physicians, he was placed in position to pursue satisfactorily his chosen field of research. Madame Curie came to Paris in 1891 from Warsaw, where she was born, and three years later met Pierre Curie, after passing the examinations for her licentiate in physics. They were married in 1895. From the day of their marriage, the two worked together to realize their dreams of investigation in physics. Supplementing her study of the life of her husband, Madame Curie adds to this volume a hundred pages of autobiography, which form an inspiring account. These pages show how possible it is for a woman to realize a successful life as both a mother and an independent scientist. The book is beautifully illustrated with numerous rotogravure photographs. It may well stand beside the life of Elie Metchnikoff, written by his wife, Olga, as a beautiful example of the best type of scientific and medical biography.

LEXIKON DER GESAMTEN THERAPIE DES PRAKTISCHEN ARZTES mit Einschluss der therapeutischen Technik unter Mitarbiet zahlreicher Fachgenossen. Herausgegeben von Walter Marle (W. Guttmann). Second edition. Gz. 6, Lieferung 5. Paper. Price, 6 Swiss francs. Pp. 641-787 with 75 illustrations. Berlin: Urban & Schwarzenberg, 1923.

LEXIKON DER GESAMTEN THERAPIE DES PRAKTISCHEN ARZTES, MIT EINSCHLUSS DER THERAPEUTISCHEN TECHNIK. Herausgegeben von Walter Marle. Lieferung 6 und 7. Second edition. Paper. Pp. 789-948, 949-1108, with illustrations. Berlin: Urban & Schwarzenberg, 1923.

Seven instalments of this "lexicon" on therapeutics (in German) have now appeared, and from these it is evident that this work, when finished, will be a valuable reference handbook for the general practitioner. Most commendable is the special emphasis on therapeutic technic, and the liberal use of illustrations. Should the final eight instalments prove as rich in therapeutic nuggets as the ones now in hand, this lexicon will be a veritable gold mine of information for use in every-day practice.

THE ELEMENTS OF PUBLIC HEALTH ADMINISTRATION. By George Sparr Luckett, A.B., M.D., Director of Public Health, State of New Mexico, and Harold Farnsworth Gray, B.S., M.S., Gr.P.H., Chief, Division of Sanitary Engineering and Sanitation, New Mexico Bureau of Public Health. Cloth. Price, $3. Pp. 460. Philadelphia: P. Blakiston's Son & Co., 1923.

This book at once disarms criticism by the modest statement in the preface that "there is little that is new or unusual in the contents." While this is quite true and while the book traverses ground already covered in other books designed for the same body of readers, it is evidently based on practical field experience, and is clear and generally accurate. It will doubtless prove useful to many health officers.

A MANUAL OF HISTOLOGY. By V. H. Mottram, M.A., Professor of Physiology in the University of London. Cloth. Price, $6. Pp. 294, with 224 illustrations. New York: E. P. Dutton & Company, 1923.

This is a relatively nontechnical textbook for brief courses in vertebrate histology, including neural anatomy. It is printed in large type with good paper. The author has made a commendable effort to present essential facts of histology in simple form. There are numerous well printed illustrations, with an excellent system of orientation. Both low and high power magnifications are often used, and sometimes hand lens views are included. A scale of magnification is indicated with the figure. There are also references to the size of structures discussed. Not so much can be said for some of the original drawings, which are often inferior. There is great variation in the clearness of detail and in the quality of analysis. The illustrations showing developing bone, the epididymis, the wall of the urinary bladder, and the skin are examples of poor drawing. We do not agree with the author's choice of terms in some cases. Lymph node is a better term than lymph gland. Reticular tissue should not be called lymphoid tissue. Not so much scholarship is shown in this work as in some other textbooks of histology. For instance, this sentence occurs in the discussion of the tonsils: "The follicles are active germ centres, i. e., places where active mitotic division of the lymphocytes is occurring, and there is a rich supply of blood vessels and lymphatics." No reference is made to any other view concerning the function of the germinal centers. Occasional lapses from good English are noted.

NOTES ON THE MEDICAL TREATMENT OF DISEASE. For Students and Young Practitioners of Medicine. By Robert Dawson Rudolf, C.B.E., M.D., F.R.C.P., Professor of Therapeutics in the University of Toronto. Second edition. Cloth. Price, $4. Pp. 486. Toronto: University of Toronto Press, 1923.

There is much good in these notes on medical treatment, by means of which the author aims to impress the broad principles of the medical treatment of the sick and to urge the importance of method in dealing with patients. It is exactly those parts that carry out these aims that impress one favorably, while those parts that do not differ from the method of presentation adopted in the standard textbooks on the practice of medicine might perhaps as well have been omitted. Our medical curriculums are too crowded to admit of duplication of work, even in so important a matter as treatment; and special courses on therapeutics will not establish themselves in medical schools until a different method of presentation is developed. In his chapter on routine in the management of the sick and in such sections as those on the general care of fevered patients, functional disturbances of the circulation, the heart in acute conditions, chronic heart failure, functional disorders of the stomach, nervous dyspepsia, functional disorders of the nervous system and on pain, headache and neuralgia, Rudolf strikes a note of the greatest practical importance. In their regular courses on the practice of medicine, our students are taught the treatment of disease rather than the treatment of the patient. Medical students should get both points of view. Some of the formulas given are rather old fashioned, and not nearly sufficient use is made of the resources of modern pharmaceutic elegance. The use of this book in the United States is handicapped in that the nomenclature, dosage, etc., of the British pharmacopeia is used.

TECHNIK DER INHALATIONSTHERAPIE. Von Dr. A. Muszkat, Kurarzt in Bad Reichenhall. Paper. Price, 75 cents. Pp. 111, with 23 illustrations. Berlin: Julius Springer, 1923.

The author believes that inhalation therapy is not used more extensively because the mistaken notion that the technic is simple has led to failure in obtaining results. This the little volume aims to rectify. The author asserts that there is no disease of the respiratory passages that cannot be more or less benefited by appropriate inhalation, and proceeds to prove the thesis by a fairly critical dissertation. The high flood of new remedies, which threaten to inundate this as other fields of therapy, has brought at least a few agents that Muszkat would not like to be without. Among these he mentions epinephrin, and calcium chlorid, for inhalation in asthma. The booklet can be recommended to the general practitioner as well as the specialist.

Medicolegal

Hospital in Restricted Residential Neighborhood

(Prest v. Ross (Mass.), 139 N. E. R. 792)

The Supreme Judicial Court of Massachusetts says that the lots in a certain neighborhood were subject to restrictions that no buildings, other than dwelling houses with the usual outbuildings, should be erected or used on the land, and no building should be used as an apartment house, family hotel, or in design or construction be fitted for occupancy by more than one family. The defendant owned two contiguous houses, which she connected by an opening cut through the partition wall, and closed by an iron door; and in these houses she maintained a private hospital. One of the houses, the entrance of which to the street was not used, was occupied chiefly as a rooming house for nurses, and under circumstances of emergency patients also were accommodated and some minor operations were performed in that house. In the other house were the dining room for nurses, the reception room where they received their friends, the rooms regularly used for patients, and the room in which operations were usually performed. In that house also all food for nurses and patients was prepared and served, and the defendant, the nurses and the housemen slept. The court does not think that the restrictions mentioned were violated. The words "dwelling house" in the restrictions meant a home intended for human habitation. The opening connecting the houses wrought no change in their internal structure. The restrictions contained nothing forbidding a purchaser of two lots from building one dwelling thereon covering both lots, or, when single houses already had been built on adjacent lots, from uniting them by such intermediate construction as he pleased, so that the combined buildings should constitute his residence or dwelling. The structure would be still a single house on each lot. If the defendant in this case used both estates in conducting the hospital as well as a residence, it was immaterial whether the room occupied by her personally was in one building or the other, as she might from time to time select.

The plaintiff contended that the hospital as conducted was a private nuisance, the continuance of which a court of equity would enjoin. But there was no finding that any of the incidents which were annoying to the plaintiff and his family were unusual or substantially abnormal when considered in connection with the conditions necessarily present in the operation of the hospital, which of itself would not be a nuisance. A hospital is generally regarded as of great usefulness, if not a necessity, in modern urban communities. It may be said that such an institution, properly equipped and efficiently conducted, is in the interest of the public welfare. It is common knowledge that, if the service hospitals are organized to render is to be prompt and effective, they must be conveniently accessible to patients, surgeons and physicians; and when the use of property for this purpose is not shown to be unreasonable, or in excess of conditions reasonably necessary, injunctive relief ordinarily will not be decreed nor damages awarded.

The defendant had the right to establish and carry on the hospital, and those in need of medical or surgical aid had the right to resort thereto for treatment and relief. The defendant not having been shown to be using her property unlawfully, nor as having exceeded the reasonable requirements for the successful operation of the hospital, was not chargeable with maintaining a nuisance, because what was being done necessarily caused some inconvenience, discomfort and annoyance to the plaintiff, who, like all other residents in the immediate vicinity, must submit to the occupations which might be there carried on, if such occupations, when properly conducted, were necessary for the benefit of the community. Therefore it was ordered that a final decree be entered dismissing the bill of complaint.

The hospital accommodated about twenty-three or twenty-four patients, and the defendant held a license from the city for the use as a lying-in hospital of the house in which were the rooms regularly occupied by patients and the room where operations were usually performed. The legislative sanction, however, was subject to the qualification that the business must be conducted without negligence or unnecessary disturbance of the rights of others.

Leaving Adjustments to Patient—Making Few Examinations—Not Advising as to Care and Smallpox—Bills

(Doty v. Lutheran Hospital Ass'n et al. (Neb.), 194 N. W. R. 444)

The Supreme Court of Nebraska says that the plaintiff, a man 41 years old, sustained a fracture of the femur of his left leg, about midway between the knee and the hip. A part of the treatment at the hospital consisted of pressure on the fractured parts by means of a wire screen device, shaped like a legging, the pressure being adjusted by loosening or tightening straps as the condition of the leg seemed to require from time to time. The adjustment of the pressure was left to the patient, who was bedfast and in a badly crippled condition. Whether the leaving of such adjustment to the patient constituted negligence was a question of fact for the jury.

The plaintiff testified that he was confined in the hospital seven weeks and a day, and that during all that time he saw one of the defendant physicians almost every morning, but that his limb was examined only three times, for about ten minutes each time, and that such physician was the one who made each of the examinations. Whether the infrequency of the examinations constituted negligence was a question of fact for the jury. It has been held that a physician is not chargeable with negligence where intervals elapse between his visits when the patient requires no attention during such intervals, but that he is chargeable with negligence where, during such intervals, the patient requires attention.

Roentgenograms and the testimony of the physician who developed them tended to corroborate the plaintiff's testimony with respect to improper setting, a lump, and a bend or arch in the leg; and it is elementary that such circumstances as were depicted in the evidence constitute questions of fact bearing on negligence or lack of skill which should be submitted to a jury. The evidence tending to prove that the fracture was improperly set at the hospital and that a normal union of the broken parts was thereby prevented, and that at the end of seven weeks and a day the plaintiff was discharged from the hospital without any instructions as to the subsequent care that should be given to the injured leg, whether the failure to give such instruction to him constituted negligence was a question of fact for the jury. Likewise, whether the "open method" treatment, which was explained by one physician, should have been employed was a question of fact that should have been submitted to the jury.

Before the plaintiff was sent to his home he had contracted smallpox, which was known to the physician at the hospital who sent him away, but he was sent away without being informed that he had smallpox. Within fifteen hours after he reached his home the nature of the disease was discovered, and for the first time made known to him, and his home was then quarantined for two weeks. Subsequently, a member of his family became infected with smallpox and the home was again quarantined for three weeks. Whether negligence was chargeable to the defendants in the failure to caution the plaintiff or to instruct him with respect to the care that he should observe in his contact with his family and others was a question of fact for the jury.

The questions mentioned were all material questions of fact, bearing on negligence and lack of skill, which should have been submitted to the jury, and the trial court erred in directing a verdict for the defendant, wherefore its judgment in their favor is reversed and the cause remanded for a trial on the merits. Two exhibits in the record were bills against the plaintiff. One was a bill of the hospital association for board, medicine, dressing and laundry, amounting to $75.25. The other was a bill for services in setting the plaintiff's leg, in the sum of $50. The latter bill was apparently on a billhead of two physicians made defendants and two other physicians. But the bills were not, of course, conclusive on the question of whether the liability was joint or several.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

32: 277-421 (Nov. 15) 1923

General Morphologic and Physiologic Importance of Oestrous Problem. C. R. Stockard, New York.—p. 277.
Oestrus in Mammals from Comparative Point of View. G. N. Papanicolaou, New York.—p. 285.
Racial and Familial Cyclic Inheritance and Other Evidence from Mouse Concerning Cause of Oestrous Phenomena. E. Allen, St. Louis.—p. 293.
Mechanism of Sexual Cycle with Special Reference to Corpus Luteum. L. Loeb, Seattle.—p. 305.
Cyclic Variation in Uterine and Tubal Contraction Waves. G. W. Corner, Baltimore.—p. 345.
Oestrous Cycle in Opossum. C. Hartman, Galveston.—p. 353.

American Journal of Psychiatry, Baltimore

3: 149-401 (Oct.) 1923

*Focal Infection and Mental Disease. N. Kopeloff and G. H. Kirby.—p. 149.
Some Problems of Hospital Personnel. M. B. Heyman.—p. 199.
Prejudices Regarding Expert Testimony in Mental Diseases. M. S. Gregory.—p. 211.
Medicolegal Provision in State of Massachusetts, Relative to Mental Condition of Certain Persons Held for Trial. D. H. Thom.—p. 219.
New York State Hospital Mental Clinics. C. O. Cheney.—p. 233.
Method of Memory Examination Suitable for Psychotic Cases. F. L. Wells and H. A. A. Martin.—p. 243.
Types of Psychoses Prevalent on Isthmus of Panama. L. Wender.—p. 259.
Picking Parole Successes. S. B. Warner.—p. 273.
Scientific Aids to Psychiatry. A. C. Buckley.—p. 285.

Focal Infection and Mental Disease.—In a series of 120 cases showing manic-depressive, dementia praecox, psychoneurotic, and psychopathic personality reactions, the removal of focal infection in fifty-eight cases did not result in a higher percentage of improvement or recoveries than in a comparable group of sixty-two cases in which foci of infection were not removed. Reviewing the entire group of operated cases showing recovery or improvement, and comparing the original prognoses with the subsequent course, the observations made by Kopeloff and Kirby demonstrate that in every case that recovered, a recovery had been forecast before treatment was started; and that no case recovered in which a poor prognosis had been given. Furthermore, in only one case did an unexpected improvement occur. A critical study of the methods used by Cotton for establishing focal infection has proved them to be unsatisfactory for teeth, stomach, lower intestine and cervix. The authors believe it is desirable to eliminate focal infection when adequately demonstrated in psychotic patients in the same way as one should attempt to alleviate any physical disorder. Nevertheless, it has not been shown that focal infection is the etiologic factor in the functional psychoses.

Archives of Internal Medicine, Chicago

32: 811-971 (Dec.) 1923

Importance of Knowledge of Thyroid Physiology in Control of Thyroid Diseases. D. Marine, New York.—p. 811.
*Elective Localization in Eye of Bacteria from Infected Teeth. R. L. Haden, Kansas City, Mo.—p. 827.
*Renal Injury Produced in Rabbits by Diets Containing Meat. L. H. Newburgh and S. Clarkson, Ann Arbor, Mich.—p. 850.
*Periarteritis Acuta Nodosa. W. Ophüls, San Francisco.—p. 870.
*Bacteriophage in Treatment of Infections. E. B. McKinley, Dallas, Tex.—p. 899.
Subacute Bacterial Endocarditis Due to Hemolytic Hemophilic Bacillus. C. P. Miller and A. Branch, New York.—p. 911.
*Urea Concentration Factor in Estimation of Renal Efficiency. I. M. Rabinowitch, Montreal.—p. 927.
*Treatment of Splenectomy of Essential Thrombocytopenia (Purpura Hemorrhagica). N. E. Brill and N. Rosenthal, New York.—p. 939.
*Blood Counts in Hodgkin's Disease. K. R. McAlpin, New York.—p. 954.
*Etiologic Relation of Achylia Gastrica to Combined Sclerosis of Spinal Cord. D. Vanderhoof, Richmond, Va.—p. 958.

Elective Localization in Eye of Bacteria from Teeth.—The fact that 68.2 per cent. of the animals injected with bacteria isolated from tooth infection in patients suffering from metastatic eye infection developed eye infections, while only 14.8 per cent. of the animals inoculated with cultures from other sources showed similar lesions, Haden thinks, could hardly be explained otherwise than by granting a selective action on the part of the bacteria. The findings thus offer confirmatory evidence of the validity of Rosenow's theory of elective localization.

Renal Injury Caused by Meat Diet.—Newburgh and Clarkson report that the majority of rabbits that ate a diet containing 27 per cent. or more of protein for six or more months, developed a chronic nephropathy. The evidence at hand suggests that the injury caused by the diet is either solely attributable to the excessive excretion of some amino acids or in part to the amino acids and in part to the acid character of the urine. But the acidity of the urine by itself is incapable of causing all of the injury attributable to the diet. The authors do not claim that this nephropathy is the anatomic analog of human chronic nephritis.

Periarteritis Acuta Nodosa.—One case of periarteritis nodosa is reported by Ophüls. It is an acute inflammatory disease of the smaller arteries, usually focal in character, which may involve any and all vascular territories. The etiology of the disease remains obscure, but the observations suggest some relation to subacute "septic rheumatic" infections. The clinical picture of the disease is that of a subacute infection with local symptoms resulting from the more or less marked involvement of various organs.

Bacteriophage in Treatment of Infections.—The bacteriophage has been used by McKinley in a variety of cases with some degree of success. He has administered the bacteriophage subcutaneously, by duodenal tube, into wounds, on dressings, by ureteral catheter, intranasally, intra-aurally and by ingestion in amounts varying from 1 c.c. to 50 c.c. In only two cases did bad reactions occur. In a few instances, following the subcutaneous administration, little "lumps" formed under the skin in the subcutaneous tissue, which have been slightly painful but which have quickly disappeared. That the bacteriophage is harmless has been amply proved by the comparatively large amounts which were given, in one case over 1,300 c.c., without bad effects.

Renal Efficiency Measured by Urea Concentration.—In renal lesions associated with azotemia or other evidence of impairment in excretion of nitrogenous substance, the urea concentration factor appears to be a more sensitive test for renal efficiency than other tests now in use. A distinct advantage of this test is that a combination of both blood and urine studies must be made in each case.

Splenectomy for Essential Thrombocytopenia.—Splenectomy was performed by Brill and Rosenthal in two cases of essential thrombocytopenia in which all known methods of treatment, especially transfusion, had failed. Both patients were in a serious condition and were almost moribund. Splenectomy brought about immediate improvement and apparent ultimate cure; it undoubtedly acted at the time of operation as a life-saving measure.

Blood Counts in Hodgkin's Disease.—From the series of eighteen cases reported by McAlpin, it would not be possible to diagnose Hodgkin's disease from examination of the blood. Platelet counts were high in seven and transitionals were high in eight. The length of illness apparently has no bearing on the total white count.

Relation of Achylia Gastrica to Spinal Sclerosis.—In a study made by Vanderhoof of 451 consecutive cases of achlorhydria, there were twenty-nine persons with definite evidence of combined sclerosis of the spinal cord. Of these twenty-nine patients, fourteen had pernicious anemia, one had pellagra and in seven the observations were incomplete, leaving seven patients that form the basis of this report. The study of these seven cases would seem to show, however, that achlorhydria not only precedes and accompanies the development of this nervous disorder, but that it is in all probability an essential predisposing cause. Achylia gastrica thus appears to be as constant a finding in combined spinal sclerosis as in pernicious anemia. In one instance neurotoxins, in the other hemolytic toxins, are evidently produced in the intestinal tract of the person whose stomach lacks the protective or inhibitory action of the normal hydrochloric acid secretion.

Archives of Occupational Therapy, Baltimore

2: 415-491 (Dec.) 1923

Circular Bag Weaving. L. J. Haas, White Plains, N. Y.—p. 425.
Occupational Therapy in Manhattan State Hospital—Mental Hospital. D. O'Flaherty, Atlantic City, N. J.—p. 437.
Occupational Therapy in Tuberculosis Sanatoriums. R. V. Harter, Atlantic City, N. J.—p. 439.
Work of Occupational Therapy Society of New York, Jan. 1, 1922, to Oct. 15, 1922. M. N. Rupp, New York.—p. 445.
Occupational Therapy in Kalamazoo State Hospital. W. A. Scott, Kalamazoo, Mich.—p. 447.
Occupational Therapy Activities of Minnesota. B. E. Lindberg.—p. 453.
Occupational Therapy in National Military Home Service. M. Shanklin, —p. 459.
Experience with Toy Making. A. Hill.—p. 465.
Occupational Therapy Activities in Iowa. M. R. Prosser.—p. 463.

Arkansas Medical Society Journal, Little Rock

20: 113-124 (Dec.) 1923

Blindness from Use of Methyl Alcohol. Report of Case. H. Moulton and E. C. Moulton, Fort Smith.—p. 113.
Uncommon Postmortem Findings. S. F. Hogue, Little Rock.—p. 115.

Boston Medical and Surgical Journal

189: 965-1010 (Dec.) 1923

*Importance of Psychiatry in Practice of Medicine. J. V. May, Boston. p. 965.
Organization and Development of Mental Clinics for Community Care. D. A. Thom, Boston.—p. 969.
Community Mental Hygiene Clinic. S. Tartakoff, Taunton.—p. 972.
Milk-Borne Diseases and Their Prevention. J. Garland, Boston.—p. 975.
*Delivery of Shoulders in Relation to Perineal Lacerations. C. D. Kickham, Boston.—p. 980.
Primary Acute Inflammation of Great Omentum—Case Report. D. S. Adams, Worcester.—p. 981.
Phagedenic Gingivitis. B. Tishler, Boston.—p. 982.

Importance of Psychiatry.—Psychiatry of today, says May, covers a field which extends far beyond the walls of an institution, is of vital importance as a public health problem, and a subject of more than passing interest to every member of the medical profession. Psychiatry has of late years been recognized as constituting a subject of such importance that it merits more consideration from the general practitioner than it has heretofore received. As a rule, it is an essential part of the curriculum in the highest type of medical schools. Some knowledge of this branch of medicine is required now by the majority of state boards of medical examiners. The necessity of modern medical care in mental hospitals is becoming more and more apparent. A more general recognition and understanding of psychiatric medicine on the part of the practitioner is equally important.

Delivery of Shoulder in Relation to Perineal Lacerations.—Kickham calls attention to the fact that if after delivery of the head strong traction is used to deliver the shoulders, it will be noticed that the posterior shoulder impinges on the perineum in about the exact spot of the initial small perineal laceration, and that continuance of this posterior shoulder pressure increases the depth and extent of the initial laceration, so that a gutter is formed, through which the posterior shoulder is delivered; this increase in depth and extent of laceration is increased in direct proportion to the resistance offered by the anterior shoulder as it impinges on the public arch. Thus it is common, after careful delivery of the head, with a very small "nick" in the perineum, to find, after completed delivery of the baby, an extensive laceration of second or even third degree.

Colorado Medicine, Denver

20: 327-358 (Dec.) 1923

Diagnosis in Cases of Foreign Body in Lung. Case Reports. H. L. Baum, Denver.—p. 333.
Early Diagnosis of Laryngeal Tuberculosis. F. R. Spencer, Boulder.—p. 340.

Endocrinology, Los Angeles

7: 661-914 (Sept.-Nov.) 1923

*Sources of Error in Organotherapy as Illustrated by Preparation and Administration of Insulin. W. D. Sansum and N. R. Blatherwick, Santa Barbara, Calif.—p. 661.
*Insulin Control of Diabetes Mellitus and Its Complications. A. H. Rowe, Oakland, Calif.—p. 670.
Incidence of Endocrinopathies in Puget Sound Basin. H. Wheelon, Seattle, Wash.—p. 689.
*Relation of Glycosuria to Kidney Permeability. H. J. John, Cleveland. —p. 699.
*Secretin. Suggestion As to Its Therapeutic Value. A. W. Downs and N. B. Eddy, Edmonton Alberta, Canada.—p. 713.
*Occurrence of Accessory Parathyroids and Their Relation to Survival of Animals After Parathyroidectomy. S. Shapiro and H. L. Jaffe, New York.—p. 720.

Future of Organotherapy.—Sansum and Blatherwick believe that organotherapy, in general, has a wonderful future, but its future development will depend not on empirical, haphazard methods of study but on the type of study which has led to present knowledge of such products as epinephrin, thyroxin, pituitary extract and insulin.

Insulin Control of Diabetes.—It is Rowe's belief that the use of insulin is indicated in the treatment of all diabetics who cannot metabolize a diet sufficient to maintain their weight and normal strength. An intimate knowledge of the dietetics of diabetes is important for all diabetics and especially for those taking insulin. Every patient must be kept aglycosuric and preferably free from hyperglycemia. A practical method of establishing insulin therapy is outlined and precautions necessary in its use are discussed. The outlook for diabetics who are skilfully treated with insulin and diet during such complications as infection or early coma and when surgery is necessary should be very favorable in the future.

Relation of Glycosuria to Kidney Permeability.—A series of twelve cases is presented by John in each of which glycosuria was present. Some of the subjects had a familial history of diabetes, yet not one of them had diabetes. These histories show the importance of making a thorough investigation of any patients who show glycosuria before making the diagnosis of diabetes. They should be treated as diabetics only while the final decision is pending.

Value of Secretin in Blood Diseases.—Experiments have shown Downs and Eddy that secretin has a markedly accelerating effect on erythropoiesis and general nutrition. It is suggested that these observations may have an important clinical application as, for instance, in pernicious anemia.

Accessory Parathyroids.—Recently there have appeared in the literature many articles in which the authors claim to have controlled and cured tetany in "completely" parathyroidectomized dogs by various procedures. Shapiro and Jaffee present evidence of the relative frequency of accessory parathyroids in cats, and point out the possible physiologic rôle played by these masses following the ablation of the main glands.

Indiana State Medical Association Journal, Ft. Wayne

16: 383-414 (Dec.) 1923

Medical South America. F. W. Foxworthy, Indianapolis.—p. 383.
Diphtheria. C. C. DuBois, Warsaw.—p. 387.
Diphtheria Control. L. P. Harshman, Ft. Wayne.—p. 389.
Gonorrheal Infection of Female Genitalia. D. R. Ulmer, Terre Haute. —p. 832.

Journal of Radiology, Omaha

4: 411-447 (Dec.) 1923

Cause of Action of Roentgen Rays and Gamma Rays of Radium on Living Cells. F. Dessauer, Frankfurt a. M., Germany.—p. 411.
Roentgenologic-Pathologic Conferences. P. M. Hickey and A. S. Warthin, Ann Arbor.—p. 416.
Diathermy, Its Field and Application. R. G. Breuer, Lincoln, Neb.—p. 423.
Gastro-Intestinal Foci of Infection in Chronic Deforming Arthritis. Radiologic Study of Cases. L. J. Carter, Brandon, Man.—p. 426.
Ultraviolet Radiation in Malignancy. A. J. Pacini, Chicago.—p. 430.

Journal of Urology, Baltimore

10: 415-536 (Dec.) 1923

*Suprapubic Prostatectomy. Analysis of 100 Consecutive Cases. N. P. Rathbun, Brooklyn.—p. 415.
Prostatectomy Under Local Anesthesia. B. Lewis and E. Hartley, St. Louis.—p. 427.
Treatment of Urethral Stricture by Excision. G. MacGowan, Los Angeles.—p. 435.
Retention of Urine Due to Congenital Hypertrophy of Verumontanum. H. G. Bugbee and M. Wollstein, New York.—p. 477.
Anesthesia in Prostatectomy. J. D. Barney and W. M. Shedden, Boston.—p. 491.
*Use and Abuse of Local Urethral Anesthetics. A. Randall, Philadelphia. —p. 503.

New Type Observation and Operating Cysto-Urethroscope. J. F. McCarthy, New York.—p. 519.
New Cysto-Urethroscope for Examining and Operating on Any Part of Urinary Tract by Direct Telescope or Indirect Perioscope Methods. G. S. Gordon, Vancouver, B. C.—p. 525.

Prostatectomy; Analysis of Cases.—Among the 100 cases analyzed by Rathbun were three cases of diabetes mellitus, one with a blood sugar of 400 mg. per hundred c.c. of blood. These three patients made uneventful recoveries, and the wounds healed kindly. There were four cases of myocarditis with evidence of decompensation. They came through successfully. There were five cases of severe hemorrhage. Two of them ended fatally in spite of packing, transfusion, etc. There were three cases of acute pyelitis with more or less severe pyrexia. The mortality in this series was 5 per cent. Two patients died from hemorrhage. There were ten cases of carcinoma. There was one case of pure myoma.

Local Urethral Anesthetics.—Cocain, novocain, procain, apothesin and alypin represent the local anesthetics used by the men who answered Randall's questionnaire. Six deaths were reported from the urethral administration of a local anesthetic, five being due to cocain. Among thirty-eight cases of alarming intoxication from the urethral administration of a local anesthetic, twenty-five were due to cocain. Novocain was responsible for five cases of alarming toxicity. Procain caused four cases of intoxication. Alypin caused one death and three intoxications and apothesin one severe toxic reaction.

Kansas Medical Society Journal, Topeka

23: 335-362 (Dec.) 1923

Treatment of Diabetes Mellitus. G. A. Chickering, Hutchinson.—p. 335.
Basal Cell Carcinoma. H. E. Blasdel, Hutchinson.—p. 338.
Tumors of Bladder. H. E. McCarthy, Kansas City, Kan.—p. 341.
Epidemic Encephalitis. P. Bassoe, Chicago.—p. 343.
Neurologic Diseases as Manifested in Gynecologic Practice. J. C. Shaw, Topeka.—p. 345.

Kentucky Medical Journal, Bowling Green

21: 669-702 (Dec.) 1923

Horseshoe Kidney with Extra Renal Pelvis; Successful Heminephrectomy. L. Kahn, Louisville.—p. 679.
*Luminal in Treatment of Epilepsy. F. G. LaRue and H. T. Thornburgh, Lexington.—p. 681.
*Spina Bifida with Hydrocephalus. G. P. Grigsby, Louisville.—p. 684.
Science and Art of Medicine in Relation to Community. H. A. Christian, Boston.—p. 688.
Lung Abscess Following Tonsillectomy. J. R. Peabody, Louisville.—p. 692.

Phenobarbital in Epilepsy.—LaRue and Thornburgh are very enthusiastic over the result obtained by them from the treatment of epilepsy with phenobarbital (luminal). In none of fifty-six cases treated has phenobarbital produced symptoms of hynosis, or any other appreciable unfavorable symptoms. There has been a marked improvement in the physical condition of these patients, and in almost every instance there has also been a pronounced improvement in the temperament and disposition as well as in the psychosis, and a consequent lessening of the usual deterioration. In all but a few of the cases there has been a marked increase in weight, some as much as 16 pounds (7 kg.) gain.

Spina Bifida with Hydrocephalus.—The outstanding features of interest in Grigsby's case were: (1) the unusual size of the spinal bifida and the large amount of contained fluid; (2) that the rather sudden release of the spinal fluid apparently had no deleterious effect on the child; (3) that the left-sided paralysis which existed prior to operation has now disappeared; (4) that the extensive spinal defect was satisfactorily closed; (5) the reduction in size of the head and decided improvement in mentality during the last ten days.

Laryngoscope, St. Louis

33: 891-956 (Dec.) 1923

Plea for International Investigation into Otosclerosis and Allied Forms of Deafness. J. S. Fraser, Edinburgh.—p. 891.
Stenger Test for Detection of Simulated Unilateral Total Deafness. M. F. Czubak, Wheeling, W. Va.—p. 921.
Suspected Mastoiditis: Interpretation of Roentgen-Ray Pictures. H. M. Hays, New York.—p. 924.
Five Atypical Cases of Mastoiditis in Children. J. C. McDougall, Atlanta, Ga., and W. J. Knauer, Jacksonville, Fla.—p. 936.
Mastoid Bandage. G. M. Coates and B. H. Shuster, Philadelphia.—p. 938.
Study of Sinusitis in Children. J. M. Lore, New York.—p. 941.
Osteomyelitis of Orbit from Extensive Sinus Disease. J. A. Morgan, Honolulu.—p. 943.
Directoscope of Haslinger (Vienna) in Diagnosis and Surgery of Larynx. S. Israel, Houston, Tex.—p. 945.
Stricture of Esophagus Following Scarlet Fever. P. P. Vinson, Rochester, Minn.—p. 949.
Case Showing Results of Halle and Lautenschlager Operations for Ozena. W. Mithoefer, Cincinnati.—p. 952.

Maine Medical Association Journal, Portland

14: 101-118 (Dec.) 1923

Fractures. W. W. White, St. John, N. B.—p. 101.
Cooperation Between Physician and Layman in Public Health Work. W. D. Thurber.—p. 107.

Military Surgeon, Washington, D. C.

53: 529-640 (Dec.) 1923

General Organization of Treatment and Evacuation of Wounded with Fractures, in Area of Front. M. L. F. Duguet.—p. 574.
Statistical Data Relating to French Medical Service During War, 1914-1918. F. M. H. Visbecq.—p. 588.
Report of Medical Committee, International Air Races. M. B. Clopton and L. D. Cady.—p. 600.
Retinal Detachment in Pilot of Air Service, U. S. Army. H. C. Neblett.—p. 605.
Improved Steel Helmet in Next War. A. M. Hanson.—p. 608.
Desertion: Observations of Psycho-Analyst. J. C. Thompson.—p. 612.

Missouri State Medical Association Journal, St. Louis

20: 405-439 (Dec.) 1923

Two Striking Cases of Optic Neuritis and Retinochoroiditis Secondary to Accessory Nasal Sinus Disease. M. Hayward, St. Louis.—p. 405.
Cardiovascular Syphilis. P. F. Stookey, Kansas City, Mo.—p. 408.
Direct Vision Adenotome for Removal of Adenoids. I. D. Kelley, Jr., St. Louis.—p. 411.
Common Mistakes in Treatment of Poliomyelitis. J. E. Stewart, St. Louis.—p. 415.
Relation of Nose and Throat Operations to Lung Abscess. H. W. Lyman, St. Louis.—p. 418.
New Urethral Syringe. N. F. Ockerblad, Kansas City, Mo.—p. 420.

Nebraska State Medical Journal, Norfolk

8: 421-456 (Dec.) 1923

Nonsurgical Drainage of Biliary Tract. A. L. Smith and C. McMahon, Lincoln.—p. 421.
Cesarean Section. G. P. Shidler, York.—p. 428.
Indications for Use of Insulin. J. M. Mayhew, Lincoln.—p. 433.
Relation of Upper Respiratory Infection to Certain Chronic Diseases of Chest. J. C. Thompson, Lincoln.—p. 436.
Acute Empyema. H. H. Davis, Omaha.—p. 438.
Intraocular Sarcoma. E. C. Foote, Hastings.—p. 443.
Two Cases of Fibromyoma. R. Rix, Omaha.—p. 447.

New Jersey Medical Society Journal, Orange

20: 415-454 (Dec.) 1923

Treatment of Malignant Disease by Means of New Higher Voltage, Shorter Wave Length Roentgen Rays, Radium and Electrothermic Coagulation. J. T. Stevens, Montclair.—p. 415.
Prevention and Relief of Heart Disease. H. M. Ewing, Newark.—p. 422.
Operative Reduction of Fractures of Femur. R. E. Soule, Newark.—p. 426.
Cardiac Pathology. A. V. St. George, Jersey City.—p. 432.

New Orleans Medical and Surgical Journal

76: 261-311 (Dec.) 1923

Diagnosis of Strictures of Esophagus. R. C. Lynch, New Orleans.—p. 261.
Removal of Pleural Effusions. O. W. Bethea, New Orleans.—p. 264.
Disturbances of Thymus Gland in Children. C. J. Bloom, New Orleans.—p. 265.
Nonspecific Urethritis. W. A. Reed, New Orleans.—p. 278.
Roentgen-Ray Examination of Colon by Means of Barium Enema. L. J. Menville, New Orleans.—p. 284.
Plastic Operations on Female Perineum. W. D. Phillips, New Orleans.—p. 287.
Practical Oral Hygiene from Dentists' Standpoint. C. S. Tuller, New Orleans.—p. 290.
Surgical Shock. J. L. Adams and J. Q. Graves, Monroe.—p. 291.

New York Medical Journal

118: 725-788 (Dec. 19) 1923

Physician and His Relation to Compensation Law. H. B. Pritchard, Syracuse.—p. 725.
Variations of Uric Acid Content of Blood in Gout. C. Finck, Vittel, France.—p. 728.
Treatment of Precancerous and Cancerous Lesions in Mouth by Electrothermy. W. H. Schmidt, Philadelphia.—p. 732.
Hypermyotrophy of Uterus (Reinicke). W. E. Darnall, Atlantic City, N. J.—p. 737.
Clinical Value of Acidophilus Milk. W. E. Clark and M. W. Perry, Washington, D. C.—p. 740.

Therapeutic Effect of Bacillus Acidophilus Milk. H. A. Cheplin, Syracuse, N. Y.—p. 742.
Hematosalpinx Associated with Ruptured Tubal Gestation. L. Rogers, London.—p. 748.
Bilateral Thrombo-Angitis Obliterans. M. J. Stone, New York.—p. 749.
Steinach Method as Applied to Women. H. Benjamin, New York.—p. 750.
Touching for King's Evil. W. R. Riddell, Toronto, Ontario.—p. 754.
Practical Applications of Basal Metabolism. J. G. M. Bullowa, New York.—p. 757.
Provision for Care of Convalescents in New York City. E. H. Lewinski-Corwin, New York.—p. 759.
Egypt and Persia in Days of Herodotus and Medical Problems Today. J. Wright, Pleasantville, N. Y.—p. 765.

New York State Journal of Medicine, New York

23: 475-514 (Dec.) 1923

Diabetes. Obstetric and Gynecologic Problem. F. G. Brigham, Boston.—p. 475.
*Epidemic Encephalitis. Treatment with Sodium Nucleinate. Report of 21 Cases. J. H. Leiner, New York.—p. 478.
Surgical Treatment of Hyperthyroidism. G. W. Crile, Cleveland.—p. 482.
Basal Metabolism in Diagnosis and Treatment of Thyroid Disease. N. B. Foster, New York.—p. 484.
Effects of Thyroidectomy in Sheep. S. Simpson, Ithaca, N. Y.—p. 486.
Gland Transplantation. H. L. Hunt, New York.—p. 488.

Sodium Nucleinate in Epidemic Encephalitis.—Leiner urges treatment of epidemic encephalitis with nonspecific proteins. He has good results follow the administration of sodium nucleinate. This substance is urged because of its physiologic properties—increasing the number of polymorphonuclear leukocytes, without a marked anaphylactic phase, and because this disease shows a lack of reaction on the part of the organism in view of the manifestation of the lymphocytic character of the perivascular infiltration. The treatment of the subacute symptoms should be persisted in until they all disappear.

Ohio State Medical Journal, Columbus

20: 1-72 (Jan.) 1924

*Aneurysm of Thoracic Aorta. J. E. Benjamin and L. Wiedemer, Cincinnati.—p. 5.
Treatment of Cancer of Uterus. C. W. Moots, Toledo.—p. 10.
Action of Radium on Cancer of Cervix. T. Zbinden, Toledo.—p. 14.
Medical Ignes Fatui. M. F. Hussey, Sidney.—p. 16.
Acute Surgical Mastoiditis. S. B. Cowen, Cleveland.—p. 19.
Reduction of Morbidity in Group of Two Thousand by Intensive Medical Supervision. C. L. Ferguson, Portsmouth.—p. 24.
Full-Time Clinical Teachers in Medical Education. C. L. Bonifield, Cincinnati.—p. 27.
Essential Determinations in Administration of Insulin. H. E. LeFever, Glouster.—p. 30.

Aneurysm of Thoracic Aorta.—The incidence of arterial aneurysms at the Cincinnati General Hospital during a six year period was 0.6 per cent.—61 cases. Fifty-three of these were thoracic aneurysms. In twenty-seven cases the arch was affected. Pain, in or about the chest, cough and dyspnea were the chief symptoms and were present in twenty-nine, twenty-five and twenty-four cases, respectively. Other symptoms were hemoptysis, dysphagia and aphonia in five, four and seven cases, respectively. Albumin and granular casts were present in nineteen cases. The Wassermann test was positive in 66 per cent., doubtful in 23 per cent. Eighteen patients improved under treatment; thirty-seven died. According to Benjamin and Wiedemer potassium iodid still remains the best drug to use in these cases.

South Carolina Medical Association Journal, Greenville

19: 659-792 (Dec.) 1923

Newer Physiology of Capillaries. J. Van de Erve, Charleston.—p. 660.
*Hemophilia in Negro. J. H. Taylor, Columbia.—p. 665.
Osteochondritis Deformans Juvenilis. W. A. Boyd, Columbia.—p. 669.
All Legitimate Progressive Scientific Medicine and Surgery Should Be Governed by One Code, and There Should be But One High Standard of Proficiency in Practice of Medicine. D. M. Crosson, Leesville.—p. 676.
Gradenigo's Syndrome. Report of Cases. M. R. Mobley, Florence.—p. 679.
Things People Should Know About Regular Medical Profession Versus Quackery. L. O. Mauldin, Greenville.—p. 681.
Nonspecific Infection of Prostate and Vesicles. M. Weinberg, Sumter.—p. 686.
Fecal Leaks and Fistula. S. O. Black, Spartanburg.—p. 687.

Hemophilia in Negro.—Taylor reports one case of this rare occurrence. The patient was 24 years of age. His parents were alive and well. One maternal uncle bit his tongue in falling and bled to death; one maternal aunt had a son, aged 9, bleed to death following extraction of a tooth; another maternal aunt had a son giving a history of profuse bleeding from slight skin injuries but died from other causes; still another maternal aunt had a boy, 12 years of age, who frequently bled, especially from the nose, until he was much weakened; a maternal female first cousin lost a boy at 9 years of age from hemorrhage following extraction of a tooth. The patient had eight sisters and four brothers. One brother bled to death following the removal of an eye, at the age of 3 weeks. The eye shortly after birth began to become more and more prominent finally resting on the cheek, the mother says, and on removal it was found to have a large clot of blood behind it. Two other brothers died with no symptoms of being bleeders. The fourth brother still lives at the age of 8 and does not bleed abnormally. None of his sisters have exhibited any bleeding tendencies. A son of one of his sisters bled to death at the age of 1 year from biting his tongue.

Southern Medical Journal, Birmingham, Ala.

16: 915-984 (Dec.) 1923

Newer Aspects of Nutrition. J. S. McLester, Birmingham.—p. 915.
*Basal Metabolic Rate in Uncinariasis. R. McBrayer, Shelby, N. C.—p. 922.
*Medical Treatment of Congenital Hypertrophic Pyloric Stenosis. J. W. Bruce, Louisville.—p. 923.
Secondary Hypertrophic Osteoarthropathy and Cirrhosis of Liver. W. H. Deaderick, Hot Springs, Ark.—p. 927.
*Treatment of Children in Home and Hospital. J. Zahorsky, St. Louis.—p. 929.
Negative Wassermann in Dermatology with Report of Cases. I. L. McGlasson, San Antonio.—p. 935.
Malarial Nephritis. M. D. Levy, Houston.—p. 942.
Venereal Disease Control in Alabama. S. W. Welch, Montgomery, Ala.—p. 945.
Arthroplasty. F. D. Dickson, Kansas, Mo.—p. 949.
So-Called Perthes' Disease. F. W. Carruthers, Little Rock.—p. 954.
*Two Cases of Gas Bacillus Infection with Recovery. H. N. Page, Augusta.—p. 956.
Rupture of Spleen; Autotransfusion and Recovery. F. C. Watson, Memphis.—p. 958.
Mistreatment of Two Months Overdue Pregnancy. G. F. Pendleton, Kansas City, Mo.—p. 959.
Porro-Cesarean Section. E. T. Newsom, Sheffield, Ala.—p. 961.

Basal Metabolism in Uncinariasis.—Five of six cases of uncinariasis seen by McBrayer had basal rates below normal, though this includes two cases with minus 5 and minus 7, which figures the author believes to be below normal, because, after thorough hookworm treatment, they rose nine and ten points, respectively. The lowest finding was minus 28, which was repeated the next day and found to be minus 26.5. A still more interesting observation was the fact that in four cases the rate slowly approached or reached normal after thorough hookworm treatment. The fifth patient would not remain under or return for observation. In none of these cases was the anemia severe. The counts ranged from 3,460,000 to 4,960,000. The hemoglobin ranged from 65 to 85 per cent.

Treatment of Hypertrophic Pyloric Stenosis.—Bruce has found atropin in large doses and thick cereal feedings more effective in the treatment of congenital pyloric stenosis when used in combination than when either is used alone. Surgery is rarely necessary. When fluids have to be given artificially the nasal drip is the most practical and effective method of administration.

Treatment of Children in Home.—Zahorsky believes that the greater the efficiency in early diagnosis and treatment in the home the less will need arise for hospital treatment.

Recovery from Gas Bacillus Infection.—The two cases reported by Page illustrate the acute fulminating and the latent fulminating types of the infection, following trauma. Early and wide opening of the wound in these cases is said to be the deciding factor between success and failure. The Carrel-Dakin method of irrigation was employed and sodium bicarbonate, 1 dram (4 gm.), was administered four times daily. In one of the cases sufficient sodium bicarbonate was added to a 1 per cent. solution of boric acid to make a solution alkaline to litmus. The stump was put in a continuous bath of this solution. Page feels that the alkaline method seems worthy of trial.

Southwestern Medicine, Phoenix, Ariz.

7: 453-502 (Dec.) 1923

Industrial Surgery. J. E. Bacon, Miami, Ariz.—p. 453.
History of Medical Ethics. S. D. Swope, El Paso.—p. 457.
Ethics of Clergy. F. Poe, El Paso.—p. 459.
Attitude of Physician Toward Patient. J. A. Rawlings, El Paso.—p. 461.
Relation and Obligation of Physician to Patient. J. W. Tappen, El Paso.—p. 463.
Specialist and General Practitioner. D. E. Smallhorst, El Paso.—p. 464.
Referred Work and Consultations. E. C. Prentiss, El Paso.—p. 466.
Mutual Relations of Clinical Pathologist and Fellow Physicians, Including Code of Ethics Adopted by American Society of Clinical Pathology. G. Turner, El Paso.—p. 468.
Is It Ethical to Sign Death Certificates for Illegal Practitioners? P. Gallagher, El Paso.—p. 470.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

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Annals of Tropical Medicine and Parasitology, Liverpool

17: 443-556 (Dec. 21) 1923

Study of Tumbu-Fly, Cordylobia Anthropophaga Grünberg, in Sierra Leone. B. Blacklock and M. G. Thompson—p. 443.
Transmission of T. Congolense by Glossina Palpalis. H. L. Duke.—p. 511.
New Species of Phlebotomus from Japan. R. Newstead.—p. 531.
Glossina Ziemanni, Grünberg, Synonym of Glossina Palpalis, Subspecies Fuscipes. R. Newstead.—p. 533.
*Malignant Growths in Natives of Sierra Leone. S. Adler and E. H. T. Cummings.—p. 535.
Breeding Places of Mosquitoes in North Wales. W. R. Wright.—p. 539.
*Frequency of Indicanuria. R. M. Gordon.

Malignant Growths in West African Natives.—It has been alleged that malignant growths in West African natives are rare. Adler and Cummings report seven cases; five of these cases occurred in aborigines and two in Creoles. The tumors were: melanotic sarcoma; epithelioma on scrotum; epithelioma of lip; meningeal sarcoma; primary carcinoma of the liver and secondary carcinoma of the liver.

Frequency of Indicanuria.—Gordon found indicanuria in about 25 per cent. of apparently normal persons. It was present in 94 per cent. of amebic dysentery cases, but was absent from the urine of five cases of bacillary dysentery.

Bristol Medico-Chirurgical Journal

40: 175-214 (Oct.) 1923

*Film Method for Determining Reaction of Liquids of Body by Indicators. G. A. Buckmaster.—p. 175.
*Diabetes Mellitus: Diagnosis and Treatment; Insulin. A. T. Todd.—p. 182.
Disorders of Deglutition. J. P. I. Harty.—p. 195.

Film Method for Determining Reaction of Liquids.—Buckmaster states that by means of celloidin rings, films of solutions, of urine, plasma, serum, bile or skimmed milk can be used with suitable indicators, and the tints matched with similar films of buffer solutions of known hydrogen-ion concentrations. The liquid held in the ring must form a flat film, not a drop. In carrying out this method only indicators in aqueous solutions should be used. Any percentage of alcohol in the indicator over 6 per cent. ruptures the film. The method applied to blood requires smaller celloidin rings, the corpuscles are allowed to gravitate off the film, and the whole procedure must be carried out in an atmosphere with a percentage of carbon dioxid between 5 and 6. In the case of urine, a film of urine is picked up on a celloidin ring and a small drop of the indicator allowed to fall on the film. It is easy to mix the liquids completely without breaking the film by gentle shaking with a circular movement. The exact tint is now matched with a standard buffer solution similarly held as a film with the same sized drop of indicator.

Insulin in Diabetes.—Todd believes that the outlook for insulin therapy is somewhat obscure. That it has advanced the treatment of diabetes is undoubted, but it may be wise to check the optimism inspired by the lay press, lest carelessness in administration and diminution of a possibly helpful psychic effect lead to some discredit of the remedy. At present insulin is used chiefly in the severe cases which are probably beyond cure. In the milder and borderline cases, better results may be expected, provided accurate dosage of insulin is maintained, but experience and time alone can decide this part of the problem. Todd suggests the possibility that insulin is not the only substance lacking in the diabetic, for it has recently been shown that when the pancreas is completely extirpated insulin only delays the fatal result.

British Journal of Dermatology and Syphilis, London

35: 435-490 (Dec.) 1923

*Erythematoid Benign Epithelioma. E. G. G. Little.—p. 435.
Cutis Verticis Gyrata. M. G. Hannay.—p. 451.
*Hitherto Undescribed Familial Disease. M. S. Thomson.—p. 455.
Mild Case of Keratodermia Blennorrhagica. P. B. Mumford.—p. 462.

Erythematoid Benign Epithelioma.—The essential features of the cases seen by Little were: There is an eruption of multiple (usually very numerous) slightly depressed, discoid, red patches, curiously like lupus erythematosus at a first hasty glance, and lupus erythematosus was the diagnosis universally offered in the first case until the histologic sections had been inspected. This erythematoid aspect is striking. Closer investigation, however, shows in the majority of cases at the edge of the red patch a very faint white, waxlike, shiny, sinuous, narrow raised margin, much flatter than the rolled edge of a rodent ulcer, but clearly of the same nature. The multiplicity of the lesions is a striking characteristic. The distribution is typical. There is no glandular enlargement in connection with any of the lesions. Metastases are absent. The benign character of the type is further evidenced by the duration of individual patches—in one case thirty years, in another twenty-one years, with very little alteration other than a slow peripheral extension—and is supported by the absence of ulceration or local destruction other than a remarkably superficial atrophy. The benign character is further emphasized by the undoubted spontaneous disappearance, without ulceration, of some lesions.

Exaggeration of Capillary Network of Skin.—The suggestion conveyed by the clinical appearances of Thomson's cases is most obviously that of an exaggeration of the normal capillary network of the skin—an impression which is apparently confirmed by the histologic pictures of the vessels. They dilate on exposure to heat or sunlight while contraction and cyanosis occur on exposure to cold. While it was impossible to indicate the cause of the changes there are one or two points worthy of note. In the first place the condition definitely makes its appearance on what might be termed the traumatic areas of childhood, to wit the cheeks and buttocks. As the child grows it spreads to the outer aspects of the legs and the dorsum of the forearms—regions more liable to injury than are other parts of the body.

British Journal of Ophthalmology, London

7: 545-592 (Dec.) 1923

Intra-Orbital Sarcoma. N. C. Ridley.—p. 545.
Endothelioma of Ciliary Body. T. H. Butler and E. W. Assinder.—p. 549.
Professor Vogt's Course on Slit-Lamp Microscopy. T. H. Butler.—p. 551.
Modern Electric Ophthalmoscope, Its Disadvantages and Advantages. R. E. Wright.—p. 559.
Small Electric Ophthalmoscopes. B. Graves.—p. 562.

Edinburgh Medical Journal, Edinburgh

30: 621-700 (Dec.) 1923

Response of Heart in Health and Disease. W. T. Ritchie.—p. 621.
*Brachial Pressure Neuritis. W. Mercer.—p. 650.
Medicina Antiqua. W. G. A. Robertson.—p. 660.
*Case of Exaggerated Gynecomazia. H. J. C. Gibson.—p. 668.

Brachial Pressure Neuritis.—The cases described by Mercer all exhibited definite signs of pressure in the dorsal root or lower trunk of the brachial plexus of the left side, and were suggestive of the presence of a cervical rib but there were vague shoulder and other pains which masked the typical symptoms of the anomalous rib. In one case the pressure was from a normal first rib; in the second case, from scoliosis and in the third case from a cervical rib; in each case the onset of symptoms was preceded by some very definite devitalizing affection. In the first case, there was a gunshot wound

of the opposite shoulder, a slight injury, but which made a great impression on the man, and was followed by a functional paresis of the opposite arm. This arm was not in use for some considerable time and consequently a disuse atrophy of muscle took place. This allowed the shoulder to drop, and the roots of the brachial plexus came into a closer relationship with the normal first rib. Prolonged pressure set up a traumatic neuritis. The second case shows a history of a severe and prolonged nerve strain, which reduced the patient both physically and mentally. His muscles, poorly developed at the best of times, became worse and showed much loss of tone. Any slight tendency toward pressure on the roots of the plexus by the scoliotic vertebrae was accentuated by the weak hypotonic muscles, and the symptoms so produced were exaggerated by the mental instability of the patient. In the third case, there was a much more definite injury, causing the prolapse of the shoulder onto an anomalous rib which had previously been of no consequence to the patient; the spinal accessory being injured, the practically paralyzed trapezius was unable efficiently to support the shoulder. The plexus dropped down on the supernumerary rib and a traumatic neuritis became clinically obvious. Traction for the scoliosis cases and radical operation for the rib pressure cases followed by physiotherapeutic treatment to strengthen the shoulder muscles is the rational mode of treatment.

Exaggerated Gynecomazia.—Gibson's patient, a man, aged 55, asserted that his breasts were definitely enlarged at the age of 14, when he began work. There was no history of injury. There has never been any secretion. He was the subject of hypopituitarism of long standing, but was of average stature though inclined to obesity. The penis was very small; each testis, about the size of a pea, was in position in the scrotum.

Indian Medical Record, Calcutta

43: 305-336 (Nov.) 1923

Toxemia of Pregnancy. H. De Sa.—p. 305.
Blood Pressure in Eclampsia and Action of Veratrum Viridi in Its Treatment. J. C. Chatterji.—p. 309.
Treatment of Acute Rheumatic Fever and Its Sequela by Intravenous Injection of Sodium Salicylate. D. M. Vasavada.—p. 316.

Irish Journal of Medical Science, Dublin

5: 387-434 (Dec.) 1923

Treatment of Malignant Disease by Deep Roentgen-Ray Therapy. E. H. Zweifel.—p. 387.
Modern Treatment of Diabetes. T. G. Moorhead.—p. 395.
*Unusual Tubal Pregnancy. H. C. C. Deane and E. C. Smith.—p. 406.
Diagnosis and Treatment of Diabetes. R. H. Micks.—p. 410.

Unusual Tubal Pregnancy.—Deane and Smith report the case of a woman who, after the birth of her third child, three years previously, at times had complete amenorrhea for three or four months, and then the periods returned and continued in a normal manner for two or three months. During this period she complained of constipation; otherwise she was in good health. The first attack of abdominal pain occurred about ten days before admission to hospital. The pain came on very suddenly and was confined to the lower abdomen, being more marked on the left side. The pain passed off gradually and in two days she was up and about apparently as well as ever. A week later she had another attack more severe in character and accompanied by dry retching. Three hours after admission she had a very severe attack. The patient was pale; temperature subnormal; pulse rapid and almost imperceptible. The lower abdomen was very tender and rigid. A laparotomy was done. As soon as the peritoneum was divided, an abundant escape of blood and clot occurred. The fallopian tube on the left side was identified. A loop of intestine was adherent to the tube and broad ligament. The intestine was freed and a tumor, about the size of a walnut, was revealed midway between the uterus and the infundibulum. A smooth shiny membrane covered it, except on its upper surface where a ragged tear appeared. In numerous sections chorionic villi were abundant. They varied much as regards size and covering cells. The syncytium in many places showed papillary outgrowths and was markedly vacuolated. In between the villi lay numerous irregular strands of nucleated syncytial masses. Areas of closely packed Langhan's cells were also present. The fetal cells infiltrated the tube wall for a considerable distance, and small islets of cyncytium could be seen lying between the bundles of muscle fibers. An unusual feature was the presence of cells, apparently of the decidual type, which were situated mainly around the blood vessels of the fallopian tube in the region of the tumor. These cells were large, had definite outlines and centrally placed nuclei which varied somewhat in size. They were arranged in more or less complete bands around certain vessels.

Japan Medical World, Tokyo

3: 231-257 (Nov. 15) 1923

Cause and Treatment of Beri-Beri in Japan. K. Ohomori.—p. 231.
*Bacteriologic Study of Violescent Pus. C. Uyeno.—p. 238.
Case of Hymenolepis Diminuta. S. Inadama.—p. 240.
Interdependence of Japanese and Chinese Medicine. W. L. Teh.—p. 241.

Bacteriology of Violescent Pus.—Uyeno isolated a strain of *Bacillus pyocyaneus* from the violescent pus secreted from a furuncle. This strain agrees with the ordinary *B. pyocyaneus*. Its virulence is not so strong.

Lancet, London

2: 1333-1384 (Dec. 22) 1923

*Chronic Dyspepsias of Women. A. J. Walton.—p. 1333.
Thyroid Apparatus in Man. G. S. Williamson.—p. 1337.
*Immunotransfusion. L. Colebrook and E. J. Storer.—p. 1341.
*Use of Opium in Cardiac Dyspnea. C. Wilson.—p. 1345.
*Temperature of Skin Over Lipomas. H. Burrows.—p. 1347.
Case of Rupture of Heart. J. K. Thompson.—p. 1347.

Chronic Dyspepsias of Women.—Walton discusses those cases of chronic dyspepsia in women caused by prolapse of viscera due to abnormally long mesenteries and membrane formation with loss of muscular tone. He says that medical treatment should be carried out in these cases. It will include careful attention to physical exercises, combined with rest, general hygiene, dieting and medical treatment. Only after such a course of treatment should any question of operative intervention be considered. In other words, if the medical treatment alone has failed, an operation may be added in order to make that medical treatment more successful.

Immunotransfusion.—From the point of view of providing the patient with efficient leukocytes, Colebrook and Storer state that it matters little whether unaltered blood or defibrinated blood is used, for immunotransfusion. Nor is there any choice between these alternatives in respect of the bactericidal power of their fluids. When the blood fluid has the power to kill staphylococci, this is found to be the same for the plasma and the serum. When, however, the question is looked at from the standpoint of ease and convenience in carrying out the transfusion, the authors use defibrinated blood. By doing so it is possible to avoid all difficulties which arise from the tendency of the unaltered blood to clot; the dissecting out and exposure of the veins of either donor or patient; and, finally, the donor need not be in the immediate vicinity of the patient. All the advantages which have been claimed in the past for the transfusion of citrated blood can now be claimed for the use of defibrinated blood; the one method is just as easy as the other.

Opium in Cardiac Dyspnea.—Four cases of cardiac asthma in somewhat different types of heart disease are cited by Wilson to illustrate the effect of opium. It is stated that a moderate dose, often a very small one, not only restores the normal respiratory rhythm—sometimes very quickly—but that orthopnea is lessened or abolished, that the fluid exuded into the bronchi is absorbed, and that these improvements endure for periods varying from days to months. The morphin alkaloid of opium was used by Wilson in his cases.

Temperature of Skin Over Lipomas.—Burrows calls attention to the fact that the temperature of the skin over a lipoma is constantly reduced when a comparison is made with due attention to symmetry and conditions of exposure. The relative coolness of the skin overlying a lipoma, as compared with that of a similar area on the opposite side of the body, is so considerable that it can be appreciated readily by palpation with the palm of the hand; and as a diagnostic aid it is reliable.

Tubercle, London

5: 105-152 (Dec.) 1923

*Elimination of Tubercle Bacillus by Kidneys in Pulmonary Tuberculosis. F. B. Hobbs.—p. 105.
Proper Place of Partial Artificial Pneumothorax in Treatment of Tuberculosis. N. Barlow.—p. 118.

Elimination of Tubercle Bacillus by Kidneys.—From the postmortem records of 1,000 cases reviewed by Hobbs, tuberculous lesions of the kidneys in association with pulmonary tuberculosis were found in 16.2 per cent. on macroscopic examination, of which a small number showed some clinical evidence of renal tuberculosis. Among twenty-two patients with no signs or symptoms of renal tuberculosis who died of pulmonary tuberculosis, and whose kidneys were examined microscopically, 32 per cent. showed lesions as compared with 18 per cent. on macroscopic examination. Both kidneys were diseased in the majority of cases, though one was usually more affected than the other. The right kidney was more often affected than the left. The bacilli, in the majority of cases, are carried through the blood stream direct to the glomeruli around which the earliest changes occur. Although in several cases the lesions were confined to the cortex, in none was the medulla affected without tuberculous changes being found in the corresponding portion of the cortex. Tubercle bacilli were found in the urine of phthisical patients in 6 per cent. of cases. A trace of albumin was found in about half of the cases examined, but appeared to bear more relation to the amount of lung disease and degree of pyrexia than to tuberculosis of the kidney. Casts, chiefly hyaline and granular, were present in 23 per cent. of cases, and were not indicative of renal tuberculosis.

Bulletin de l'Académie de Médecine, Paris

90: 577-606 (Dec. 18) 1923

A Case of Leprosy Contracted in Paris. E. Jeanselme.—p. 595.
*Syphilitics with Malaria. G. Marinesco and Draganescu.—p. 598.

Danger of Neo-Arsphenamin in Syphilitics with Malaria.—Marinesco and Draganescu report the history of a woman suffering from general paralysis. She had also latent malaria which flared up after six injections of neo-arsphenamin (total 24 gm.) and proved fatal. They quote other authors to demonstrate the danger of arsphenamin in syphilis complicated with malaria.

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 1729-1788 (Dec. 14) 1923

Disappearance of Chlorosis. G. Etienne.—p. 1729.
Pleuropulmonary Affection of Unknown Origin. H. Grenet.—p. 1730.
Late Osteo-Articular Manifestations of Syphilis. C. Flandin.—p. 1732.
The Potain Aspirator. Vaquez.—p. 1736.
*Pathomimesis. Brulé et al.—p. 1736.
Roger's Disease in Mother and Child. R. Debré et al.—p. 1742.
Aneurysm of Cavernous Sinus. J. Hallé and Poulard.—p. 1746.
Paralysis of Opposition of Thumb. A. Léri and Weissmann-Netter.—p. 1749.
*Trigeminal Neuralgia. M. Pinard.—p. 1754.
Case of Syphilis of the Spleen. H. Grenet and J. Peignaux.—p. 1756.
Mutilating Scleroderma. F. Bezançon and E. Bernard.—p. 1762.
Late Heredosyphilitic Polyarthritis. A. Gilbert et al.—p. 1768.
*Hemophilia. R. Feissly.—p. 1778.
Acute Exfoliating Erythrodermia. Denéchau and Arin.—p. 1783.

Simulation of Tuberculosis and Intestinal Occlusion.—Brulé and his co-workers relate the case of a woman of 22 who induced fecaloid vomiting by collecting feces in a box and putting them in her mouth; the swelling of the abdomen was obtained by absorbing several liters of liquid, and the rise of the thermometer by shaking it or by repeated contractions of the sphincter ani. Nosebleed induced by means of a pin was used to simulate hemoptysis. She had simulated for several years coxalgia, various abscesses, intestinal occlusion and fever, and succeeded in obtaining an artificial anus.

Trigeminal Neuralgia.—In Pinard's case, the woman of 48 was in good health but had suffered for years from trigeminal neuralgia rebellious to all treatments. The Wassermann reaction was negative. From past experience he was convinced that essential facial neuralgia is usually an unrecognized syphilitic neuralgia. Injections of neo-arsphenamin resulted in prompt and complete recovery.

Hemophilia.—Feissly concludes from his experiments that the relative incoagulability of the blood in hemophilia is not due to a quantitative insufficiency of thrombin but to the extraordinary slowness of its formation. It is evident that in hemophilia the plasma and not the cellular (thrombocytic) factor is to blame. He explains the differences observed by Fonio as regards the activity of platelets by the fact that these elements are surrounded by a "plasmatic atmosphere" adsorbed at their surface. While coagulation is a physicochemical reaction, occurring at the expense of the colloids of the plasma, the albumins and lipoids, hemostasis is the result of a biologic process which manifests itself by thrombosis. The segmental contraction of the injured vessels is the first defensive act against hemorrhage. On account of their power of agglutination, the blood platelets form then the "hemostatic plug," and coagulation is only a secondary phenomenon. The power of agglutination of platelets in hemophilia is very small. To provoke a physiologic hemostasis in hemophilia, transfusion of 20 c.c. of normal blood or plasma suffices, as this induces the correction of the bleeding time and the normal agglutination of platelets. He noted, however, that the transfusion of hemophilic blood to a subject with hemophilia shortened also the bleeding time.

47: 1789-1820 (Dec. 21) 1923

*Treatment of Diabetes with Insulin. L. Blum et al.—p. 1789.
*Treatment of Pleurisy with Calcium Chlorid. R. Burnand.—p. 1797.
*Epidemic of Ideas of Sacrifice. De Massary and Rachet.—p. 1807.
Infectious Endocarditis of Meningeal Type. E. de Massary and J. Rachet.—p. 1808.
*Antipneumococcus Serotherapy. G. Etienne and M. Braun.—p. 1813.

Dangers of Interruption in Treatment with Insulin.—Blum, Carlier and Schwab relate several clinical histories showing the dangers of suspension of insulin treatment in severe cases of diabetes. In a man of 35 the fatal intoxication began forty-eight hours after the last injection, and death occurred five days later. He had been treated with insulin at the hospital, and continued the injections on returning home until his supply failed and he had to stop. Increasing weakness set in and was followed by coma. In their second case, the number of injections was reduced after the patient had asked that they be interrupted. Glycosuria and acetonuria reappeared and increased rapidly. Forty-eight hours later the patient was in coma. Very large doses of insulin were injected immediately, and twenty-four hours later the intoxication disappeared. Similar disturbances during treatment are due to complications which lower the carbohydrate tolerance, making thus the doses insufficient. They believe that the danger of discontinuing the injections lies in the lack of preparedness of the organism for the acid intoxication. The danger is less in children than in adults, because the islands may have regenerated in children. Diabetics should always keep a reserve supply of insulin to continue the treatment, and to cope with unforeseen complications susceptible of aggravating the diabetes. If they have to discontinue the injections, they should fast and use large amounts of alkali. Only when the urine is alkaline can immediate danger be considered as averted.

Treatment of Serofibrinous Pleurisy with Calcium Chlorid.—Burnand gave from 3 to 8 gm. calcium chlorid daily, and noticed a striking coincidence between the beginning of the treatment and the beginning of the disappearance of fever. Its action on diuresis was good in several cases. On the other hand, its influence on the effusion was hardly noticeable. In other cases, however, defervescence began just as well without treatment, and the disease in these patients presented no marked differences in length or severity.

Epidemic of Mystic Ideas of Sacrifice from Kinematographic Films.—De Massary and Rachet relate that two men and one woman called at the Lariboisière Hospital in one week's time urgently demanding a total bloodletting or transfusion—necessarily fatal—as a humanitarian sacrifice. The authors ascribe this desire for self-immolation to a motion picture which had been shown the previous week in the neighborhood.

Antipneumococcus Serotherapy.—Etienne and Braun report favorable results with subcutaneous serotherapy. Patients entering the hospital with delirium were able to sleep peacefully twelve hours after the first injection. Profuse diuresis

accompanied often this general improvement. After the first injection, leukocytosis decreased rapidly and continued to go down gradually. The phenomena from asphyxia also yielded quickly to the treatment. They used 80 c.c. and 60 c.c. of the polyvalent antiserum prepared at the Institut Pasteur. Their series included twenty-four cases.

Journal d'Urologie, Paris

16: 337-448 (Nov.) 1923

The Prognosis in Toxemia. N. Serrallach.—p. 337.
*Alleged Cures of Renal Tuberculosis. R. Lévy.—p. 352.
The Phenolsulphonephthalein Test. M. Negro and G. Colombet.—p. 379.
Exstrophy of the Bladder in Woman Aged 39. J. Bardon.—p. 384.

Alleged Cures of Renal Tuberculosis.—Lévy illustrates by several clinical histories the dangers of closed tuberculosis of the kidneys. It may cause severe complications by extension of the process and by general toxic action. It is impossible to consider such a kidney as healed. Nephrectomy is the only safe method of treatment for any tuberculous lesion of the kidneys.

Lyon Chirurgical

20: 681-856 (Dec.) 1923

*Ascarides in Biliary Passages. N. Hortolomei.—p. 681.
*Periarterial Sympathectomy for Leg Ulcers. Hardon and Mathey-Cornat.—p. 694.
*Periarterial Sympathectomy for Mal Perforant. V. Yakovlievitch.—p. 735.
*Suture of Arteries. A. Avramovici.—p. 738.
Fibroma in Nasopharynx. N. Gignoux and H. Aloin.—p. 743.
*Posttraumatic Loss of Vasomotor Balance. R. Leriche.—p. 746.
History of Insulin. A. Policard.—p. 754.

Ascarides in Bile Ducts.—There had been no jaundice, although seventeen ascarides were removed from the common bile duct of the girl of 8, and six escaped through the incision later. Intense pains, fever and a tumor had been the symptoms; no calculi were discovered. Hortolomei summarizes sixty-one cases from European literature.

Periarterial Sympathectomy for Leg Ulcers.—The details of thirteen cases are tabulated in which ulcerating varicose veins of from ten months to twenty years' standing healed over smoothly in from six to thirty-five days after periarterial sympathectomy. The ulcer returned later in 30 per cent. but only in elderly and unhygienic subjects.

Periarterial Sympathectomy for Mal Perforant.—The lesion had resisted all other treatment for a year in one of the two cases, and in the other for seven years. Healing was complete in eighteen and in twenty-six days after the periarterial sympathectomy.

Suture of Arteries.—Avramovici extols the advantages of introducing a glass rod into the vessel and suturing over this until only space is left to withdraw the rod.

Posttraumatic Loss of Vasomotor Balance.—Leriche's charts show that the primary upset of the local vasomotor balance is more pronounced and lasts longer at points with the most abundant vasomotor innervation—trauma affecting the fingers rather than the root of the limb, for example. Cicatricial retraction disturbs the balance still further. The vasoconstriction is revealed by the oscillometer.

Médecine, Paris

5: 165-240 (Dec.) 1923

Hygiene and Infectious Diseases in 1923. L. Tanon.—p. 165.
Spirochetoses. G. Etienne.—p. 180.
*Treatment of Pneumonia with Specific Serums. E. Sacquépée.—p. 187.
*D'Herelle's Bacteriophage. A. Philibert.—p. 191.
Treatment of Leishmaniases. C. Joyeux.—p. 198.
*Parasympathetic Paralysis. J. Gautrelet.—p. 204.
*Preventive Serotherapy of Measles. H. Cambessédès and P. Joannon.—p. 209.
*Modern Conception of Herpes. L. Béthoux.—p. 216.
Treatment of Malaria. Fontoynont.—p. 221.
Elimination of Drugs. A. Liot.—p. 223.
*Lumbar Puncture in Cerebrospinal Meningitis. P. Cochez.—p. 229.
Koplik's Spots in Prophylaxis of Measles. R. de Brun.—p. 234.

Treatment of Pneumonia with Specific Serums.—Sacquépée points out that it is only recently that active polyvalent antipneumococcus serums have been obtained. Intramuscular, and in some cases intravenous injections, are preferable. Two preparatory injections of 0.5 and 2 c.c. should be given at intervals of from ten to fifteen minutes; only clear serums should be injected intravenously, and diluted in eight to ten times their volume of normal saline solution and at a temperature of about 40 C. The injection should be slow, taking from twenty-five to thirty minutes. If the subject is susceptible to anaphylaxis, six preparatory injections should be given, beginning with 0.1 c.c. Doses vary according to circumstances: intramuscular, 40-80 c.c.; intravenous, 30-60 c.c.

D'Herelle's Bacteriophage.—D'Herelle had found that during an epidemic not only bacilli, but also bacteriophages can be transmitted from the convalescents and the cured to healthy subjects, and immunize them against the disease. He has made successful therapeutic use of the bacteriophage on animals, and Philibert on human subjects. The practical difficulty of such experiments is due to the specificity of the bacteriophage. There must be only one inoculation or at the most two inoculations at intervals of forty-eight hours, as repeated injections entailed, in the animal, instead of immunity, a greater susceptibility to infection. The use of the bacteriophage seems limited to intestinal diseases, infections of the urinary tract, and to diseases caused exclusively by micro-organisms susceptible to the various bacteriophages.

Paralysis of the Parasympathetic as the Basis for Shock Treatment.—Gautrelet states that nigrosin is an excitant of the parasympathetic nervous system. No drop of blood pressure was noted in dogs previously injected with peptone or colloidal silver after successive injection of thionin and nigrosin. During twenty-four hours the parasympathetic system was in a state of less excitability. This condition succeeds to the vasodilatation which determines the shock and discloses the parasympathetic excitation. He finds that nearly all the antianaphylaxis procedures seem to act by provoking paralysis of the parasympathetic.

Preventive Serotherapy of Measles.—During the recent severe epidemic of measles among young infants, Cambessédès and Joannon found that convalescents' serum was an effectual means of combating the disease.

Modern Conception of Herpes.—Béthoux asserts that the appearance of vesicles during various infectious diseases should be considered as a complication or a superposed infection. However, we should try to determine why certain infections are accompanied by herpetic manifestations while some considered due to a filtrable virus (scarlet fever, measles, smallpox) are almost always exempt from them. Experimentation has established the unity and specificity of herpes.

Practical Data on Lumbar Puncture.—Cochez states that besides lumbar puncture during a prolonged cerebrospinal meningitis in infants, high spinal puncture and ventricular puncture will often be necessary to discover and treat the "nests of meningococci."

Paris Médical

501-516 (Dec. 22) 1923

Chemotherapy of Trypanosomiasis. E. Fourneau.—p. 501.
Solitary Adenoma of Liver. J. Cathala.—p. 508.
*Filtrable Viruses. P. Hauduroy.—p. 513.

Filtrable Viruses.—Hauduroy points to the analogies between filter passing viruses and bacteriophages: It is impossible to cultivate them in dead mediums. So far they have proliferated only in tissue cultures—in the presence of living and multiplying cells.

Presse Médicale, Paris

31: 1045-1056 (Dec. 15) 1923

*Treatment of Polyarticular Rheumatism. Daniélopolu.—p. 1045.
Test for Diuresis. P. L. Violle.—p. 1048.
Treatment of Tuberculous Orchiepididymitis. Sénèque.—p. 1049.

Treatment of Polyarticular Rheumatism.—Daniélopolu uses only sodium salicylate, and prevents all disturbances entailed by it by means of twice as large doses of bicarbonate of soda. The patient's urine must become alkaline as required by Lees. He gave from 15 to 18 gm. daily, and even 30 gm. daily in severe cases, divided in equal doses every two hours in day time and every four hours at night. Treatment must be progressive, beginning with 8 gm. in adults and 5 gm. in children, aged 8 to 12. He maintains the maximum dose until considerable improvement is noted. Administration is by the mouth only. He never noted any permanent heart lesion in patients who were treated with these large doses.

31: 1057-1068 (Dec. 19) 1923

*Vagosympathetic Tonus. Pasteur Vallery-Radot et al.—p. 1057.
Instruments for Gallstone Surgery. A. Desjardins.—p. 1059.
Priority in Plastic Surgery. W. Filatoff.—p. 1061.

Pharmacodynamic Tests for Vagosympathetic Tonus and Anaphylactic States.—Vallery-Radot, Haguenau and Dollfus say that it is evident that in urticaria the sympathetic plays a rôle, and that in asthma the pneumogastric nerve conditions the symptomatology of the attack. The participation of the organovegetative system in the anaphylactic crisis is recognized today by all clinicians. In spite of this, their pharmacodynamic tests made in urticaria, asthma and migraine showed such wide divergences that it seems useless to explore the vagosympathetic tonus with such tests.

31: 1069-1080 (Dec. 22) 1923

*Lessons from the Tuberculin Skin Reaction. A. B. Marfan.—p. 1069.
Xanthoma of the Uterine Tube. C. Daniel and A. Babès.—p. 1073.
Synergy of Drugs. L. Cheinisse.—p. 1075.

Cuti-Reaction and Immunity Against Tuberculosis.—Marfan points out that the child born from tuberculous parents is not tuberculous, nor predisposed to tuberculosis nor in a state of dystrophy. A latent focus protects against a new infection. The use of cuti-reaction has proved the fact that the frequency of tubercle bacillus infection increases with age. He proved with statistics, in 1886, that, under certain conditions, recovery from lupus and suppurating tuberculous adenitis confers immunity against pulmonary tuberculosis. However, a complete cure in a chronic infection, like tuberculosis, destroys the immunity. The importance of new infections for the development of pulmonary tuberculosis is not certain. Statistics show that tuberculosis is no more frequent among physicians and nurses than among persons of similar social standing living apart from infected centers. Among infants under the age of 1 year, with positive cuti-reaction, nearly 30 per cent. are still living two or three years later. Bernard and Debré have demonstrated the relation between strong and repeated exposure and the severity of the process. Their argument in favor of early separation of the child from the mother is valuable: Even although already infected by the mother, the prompt separation, preventing further infection, often allows recovery.

31: 1081-1088 (Dec. 26) 1923

*Contractility of Capillaries. A. Policard.—p. 1081.
Diverticulum of the Duodenum. J. Caraven.—p. 1084.
*Cicatricial Mesenteritis. J. Rutkowski.—p. 1084.

Contractility of Capillaries.—Policard admits without restriction the contractility of perithelial cells. The variations in size of the capillaries are controlled by the nervous and humoral systems. The capillaries contract under stimulation of the sympathetic, and dilate under the control of the spinal system. Arrest of the blood circulation suspends the capillary tonus. It seems that there exists in the blood a "something" which is necessary for the contractility of the capillaries, and Krogh demonstrated that this necessary element is neither oxygen nor a mineral element, but some substance similar to a hormone, not specific, of relatively simple constitution and easily destroyed. He also proved that to eliminate all sympathetic influence on the vessels of an extremity we must not only cut the nerve trunks but also destroy the periarterial nervous plexus which constitutes the pathway of the impulses to the capillaries—the most important physiologic part of the circulatory apparatus. These findings have greatly contributed to the understanding of the action of Leriche's periarterial sympathectomy.

Cicatricial Mesenteritis.—Caraven states that chronic sclerotic mesenteritis is very rare. It entails abdominal pains, relapsing subacute occlusion and sometimes acute occlusion of the intestine. Fibrous chronic mesenteritis is the result of various abdominal affections, perhaps of tuberculous origin. Prognosis in cases of occlusion is doubtful, and treatment must be surgical.

Schweizerische medizinische Wochenschrift, Basel

53: 1165-1188 (Dec. 20) 1923

*Brain Tumors. G. Bickel and E. Frommel.—p. 1165.
Acute Anterior Poliomyelitis. M. Dubois.—p. 1171. Conc'n p. 1195.
Sedimentation Test in Gynecology. E. Gueissaz.—p. 1176.
Friedmann's Vaccine. F. F. Friedmann.—p. 1180.

Brain Tumors.—Bickel and Frommel report thirty cases of brain tumors. Choked disk was not always present. The signs of intracranial hypertension were absent in one third of their cases. Two patients with cerebellar tumors died after lumbar puncture.

Archivio di Patologia e Clinica Medica, Bologna

2: 569-650 (Dec) 1923

Pleuropulmonary Carcinosis. A. dalla Volta and A. Valenti.—p. 569.
*Diuretic Action of Calcium. C. Barinetti.—p. 606.
Hyperalbuminosis in Serum in Tumor Cases. C. dalla Rosa.—p. 614.
Insulin Treatment. L. Villa.—p. 619.

Diuretic Action of Calcium.—Barinetti observed after large doses of calcium chlorid a decrease in blood pressure and an increase in the refracting power of the serum in two patients with hypertension and hydremia. Doses of 10 gm., given in one day, produced sometimes mental depression and somnolence if the diet contained very little salt.

Policlinico, Rome

30: 605-652 (Dec. 15) 1923. Surgical Section

*Congenital Displacement of Kidney. G. Baggio.—p. 605.
*Retention of Urine After Spinal Anesthesia. I. di Pace.—p. 614.
Oblique Hernia Masquerading as Direct Inguinal. Macaggi.—p. 625.
Traumatic Lesions of Middle Meningeal Artery. G. Muccini.—p. 629.
Staphylolysins in Diagnosis of Staphylococcus Infection. N. Piccaluga.—p. 639.

Ectopic Kidney in Lumbar Region.—Girard found only six instances of ectopic kidney in the lumbar region in 103 ectopic kidneys, and Raggio adds another to the list. In this case disturbances from the right kidney were ascribed to sagging of the kidney into the lumbar region, and nephropexy was done, but without relief. It was then recognized that the dislocation was congenital and the kidney was removed.

Retention of Urine After Intraspinal Anesthesia.—The retention lasted for two weeks, and Di Pace attributes it to injury by the needle of some sacral nerve.

Riforma Medica, Naples

39: 1185-1208 (Dec. 10) 1923

Banti's Disease in a Girl of Ten. D. Giordano.—p. 1185.
*Venesection and Immunity. A. Fragomele.—p. 1187.
Twins and Constitution. P. Mino.—p. 1188.
Flint's Murmur. F. T. Silvestri.—p. 1191.
Postoperative Jejunal Ulcer. M. Balsamo.—p. 1193.
Bill for Compulsory Treatment with Arsphenamin. Barduzzi.—p. 1195.

Venesection and Immunity.—Fragomele injected emulsions of typhoid bacilli into rabbits and made agglutination tests before and after venesection, withdrawing 30 c.c. of blood. He found a strong increase in agglutinins after twenty-four hours and a still stronger (as much as fivefold) after forty-eight hours.

39: 1209-1232 (Dec. 17) 1923

*Epinephrin and the Capillaries. L. Manfredi.—p. 1209.
*Autoseroreaction in Tuberculosis. G. Barbaro Forleo.—p. 1212.
*Glycemia and Oxygen Inhalation. R. Pinali.—p. 1215.
Petrolatum Tumors After Typhoid Vaccination. Debenedetti.—p. 1216.
Use of Insulin in the United States. L. Mancusi-Ungaro.—p. 1217.

Epinephrin and the Capillaries.—Manfredi studied the effects of subcutaneous injections of epinephrin on the capillary circulation in man. He observed at first a spasm, then a relaxation of the capillaries. In the latter stage, however, the vessels were rather less visible than before.

Autoserum Reaction in Tuberculosis, from the Standpoint of Prognosis.—Forleo found a diminution and disappearance of Leone's autoserum reaction in tuberculosis with a good prognosis. It is also negative in rapidly progressive cases.

Hyperglycemia and Oxygen Inhalation.—Pinali found a distinct diminution of glycemia in five diabetics after inhalation of 100 liters of oxygen within one hour. Forlanini had observed in 1892 a favorable effect from inhalation of compressed air on glycosuria and acetonuria.

Rivista di Clinica Pediatrica, Florence

21: 705-764 (Dec.) 1923

*Etiology of Scarlet Fever. G. Caronia.—p. 705.

Etiology of Scarlet Fever.—Caronia refutes the priority claims of Amato in respect to Di Cristina's micro-organisms.

Anales de la Facultad de Medicina, Montevideo

8: 887-990 (Oct.) 1923

*Epidemiology in Uruguay. J. de Salterain.—p. 887.
Appendicitis in Femoral Hernia. A. Lamas.—p. 940.
Case of Extirpation of Rectum. Mérola and Nario.—p. 943.
*Bone Metastasis of Latent Thyroid Cancer. J. Nin y Silva.—p. 948.
Siphon Treatment of Duodenal Fistula. A. Gaminara.—p. 954.
*Profuse Hemorrhage from Rupture of Pregnant Tube. D. Prat.—p. 958.

Epidemiology in Uruguay.—This extensive study has been prepared for a work on the pathology of South America by physicians in the different countries. There have been only five deaths from smallpox since 1911 when vaccination was made compulsory, but typhoid still forms 1.27 per cent. of the total mortality. The population of Uruguay was 1,494,953 in 1920.

Metastasis in Bone of Latent Cancer in the Thyroid.—Nin y Silva's patient was a woman, aged 28, who had had a goiter since the age of 13. Tumors in the skull and a vertebra seemed to be malignant metastases of the apparently harmless goiter which had never caused disturbance of any kind, and had persisted stationary for eight years.

Intra-Abdominal Hemorrhage.—Prat states that whole blood injected into the peritoneum in a number of clinical cases was completely absorbed, This probably occurs with more or less completeness after every hemorrhage from extra-uterine pregnancy. High leukocytosis may be the first sign of an internal hemorrhage, before it becomes clinically manifest.

Archivos Españoles de Pediatría, Madrid

7: 641-704 (Nov.) 1923

*Acute Leukemia. L. Morquio.—p. 641.
*Meningococcus Meningitis. Martin González Alvarez.—p. 664.

Acute Leukemia in Children.—Morquio summarizes sixteen cases with necropsy findings. In one child of nearly 4 the acute leukemia with gangrenous ulceration of the tonsils had been mistaken for diphtheria. Acute leukemia may develop after any septicemic condition with a thymus-lymphatic constitution, probably from inability to realize normal phagocytosis. He regards acute and chronic leukemia as entirely different diseases.

Meningococcus Meningitis.—The vascular communication with the ear in very young children explains the frequency of meningitis in connection with otitis. The otitis is often metastasis of meningococcemia. With headache, vomiting and fever, followed by signs indicating muscular hypertonicity (Kernig, etc.) lumbar puncture is imperative, and serotherapy should be continued with large doses until the meningococci have definitely disappeared. The spinal fluid may show 3 gm. of albumin and 54 cells per cubic millimeter, as in one convalescent recently, but this alone does not call for continuation of the antiserum. Parallel lumbar puncture and injection of saline in some healthy children showed up to 2 gm. albumin and 40 or 50 cells. One child died the eighty-fourth day, and meningococci were found in the fluid. Serotherapy had been discontinued a month before. González Alvarez reiterates the warning that the throat of all contacts must be disinfected, and serotherapy must be pushed with larger doses than those generally used.

Archivos Latino-Amer. de Pediatría, Buenos Aires

17: 785-866 (Dec.) 1923

Striatal Sequelae of Encephalitis. J. M. Estapé and M. Ponce de León.—p. 785.
*Syphilitic Stridor in Infant. J. P. Garrahan.—p. 790.
*Hydrocephalus of Mechanical Origin. R. A. Rivarola.—p. 793.
*Pancreas Treatment of Eczema in Infants. P. Rueda.—p. 805.

Syphilitic False Croup.—The infant, aged 14 months, had been treated for supposed diphtheria, but the stridor and suffocation were finally explained by infiltration of the epiglottis and lesions in the vicinity suggesting syphilids. For nearly two months there had been recurring attacks of fever and congestion of the lungs with the pseudocroup; treatment for inherited syphilis resulted in clinical recovery.

Hydrocephalus of Mechanical Origin.—Rivarola describes the findings in eight infants with hydrocephalus; necropsy confirmed the diagnosis of obstruction of the acqueduct of Sylvius or of the foramina of Luschka and of Magendie. An operation had been done in all but two of the cases.

Eczema in Infants.—Rueda argues that malnutrition from the fat in the milk is the cause of eczema and seborrhea in infants. His plea that pancreas organotherapy is the logical and effectual treatment has already been mentioned here when published elsewhere.

Brazil-Medico, Rio de Janeiro

2: 297-310 (Nov. 17) 1923

*Individual Prophylaxis of Venereal Disease. M. Kroeff.—p. 297.
Osteomyelitis in the Heel. G. Hromada.—p. 302.
Treatment of Scabies. Milian.—p. 304.

Individual Prophylaxis of Venereal Disease.—Kroeff advocates the Gauducheau method of personal prophylaxis rather than the "American method." A combination of cyanid of mercury and thymol with the Metchnikoff ointment protects against gonorrhea as well as against syphilis, while the single collapsible tube is more convenient than a fluid to use with the ointment. He insists that youths should be trained in the use of personal prophylaxis as a matter of course until this becomes a habit like the use of the toothbrush. In 100 men examined, the first sexual intercourse had been at the age of 11 in 4 per cent.; at 12 in 10 per cent.; at 13 in 23 per cent., and at 14 in 26 per cent. Venereal disease before marriage was known in 65 per cent.; chastity until marriage in 0 per cent. His experience has been that public lectures on sexual enlightenment are not attended by the ones who need enlightening most, and he is convinced that the task of education and diffusion of individual prophylaxis belongs to the school. The young should be instructed privately or in small groups, and the wisdom and advantages of chastity instilled at the same time. "If men acquire the habit of preventive disinfection, the venereal diseases will disappear."

2: 311-324 (Nov. 24) 1923

*Gynecologic Syphilis. A. Farani.—p. 311.
"Solarization" for Trachoma. Edilberto Campos.—p. 315.
*Prophylactic Dispensaries for Venereal Disease. M. Kroeff.—p. 315.

Gynecologic Syphilis.—Farani remarks that little is known of syphilitic disease of the uterus and it is rarely diagnosed, and yet it is the organ most exposed to contagion. In his nine cases, hemorrhage was the most important symptom. It may affect every kind of menstrual disturbance, but an insidious onset and persisting menorrhagic type is the most common. When leukorrhea accompanies the menorrhagia, a gummatous process in the uterus is almost certain. Woody hardness of the isthmus alone is a frequent finding. Pain is rare, and is usually due to compression. With syphilitic disease of the ovary, pain is common, and it increases during menstruation. In a case described, the right ovary was enlarged, movable, and somewhat slightly painful, with menorrhagia and a history of syphilis. Under antisyphilitic treatment clinically normal conditions were soon restored. In vulvitis, etc., local treatment may fail unless supplemented by antisyphilitic treatment to modify the soil, and general treatment may fail without adjuvant local measures.

Social Hygiene Dispensaries.—This is the report presented at the recent international congress on social hygiene. Kroeff states that there are seventeen dispensaries of the kind in Rio de Janeiro, and 105 elsewhere in Brazil, to a total population of 30,000,000.

Semana Médica, Buenos Aires

2: 1273-1328 (Dec. 15) 1923

Operative Treatment of Hydatid Cysts. Zorraquín.—p. 1273.
*Nomenclature for Sagging Stomach. T. Martini.—p. 1275.
*Slow Endocarditis in Children. M. Acuña and A. Casaubon.—p. 1276.
*The Arce Method of Ligamentopexy. C. A. Castaño.—p. 1281.
Acquired Myotonia. J. M. Obarrio and R. Torres.—p. 1284.
Sarcoma in Child's Kidney. J. Salleras.—p. 1288.
*Painful Form of Acute Poliomyelitis. J. P. Garrahan.—p. 1290.
Laryngeal Tuberculosis. A. A. Cetrángolo and J. F. Mieres.—p. 1292.
Hydatid Cysts in Lungs. C. A. Castaño and S. Mazza.—p. 1295.
Polyneuritis with Athetosis of Hand. P. Hendler de Rabinovich.—p. 1297.
Cholecystoduodenostomy. E. Blos.—p. 1301.
*Water in Origin of Goiter. L. Goldemberg.—p. 1305.

Dolichogastry.—Martini protests that "gastroptosis" is an unscientific term, as the inlet and outlet stay in the same place. Only the center of the bag stretches, and he has traced this to some constitutional cause in 70 per cent. of his patients with permanent dolichogastry.

Slow Endocarditis in Children.—Two cases of malignant endocarditis in girls of 9 and 11 are compared with the more recent ones on record. The course was four months in his cases, about five years after acute febrile rheumatism.

The Arce Ligamentopexy.—The round ligament is sutured to the external inguinal ring, and thus the ligamentopexy aids in averting hernia besides correcting the retroversion of the uterus. Arce published this method in 1907, and Castaño declares that experience to date confirms it as ideal. (Illustrated.)

Painful Form of Acute Poliomyelitis.—The child, aged 3, had been having pain in the right hip for some time, but improved under treatment for the supposed arthritis. Five months later the child was returned to the hospital with flaccid paralysis of that limb. The unheeded three or four days of fever before the coxalgia had developed must have been an attack of acute poliomyelitis. In three older children, the disease induced intense pain in the spine; also in one hip joint in one child, and it still limps with this leg. The others recovered.

Origin of Goiter.—Goldemberg presents evidence that a fluorid in the drinking water is responsible for endemic goiter. This precipitates out by standing and decantation.

Beiträge zur klinischen Chirurgie, Tübingen

130: 225-494, 1923

Acridin Derivatives in Disinfection. Brunner and Gonzenbach.—p. 225.
Idem. H. Braun and R. Goldschmidt.—p. 325.
*Surgery of the Stomach. H. Flörcken.—p. 329.
Two Primary Gastric Cancers and Peptic Ulcer. E. Steden.—p. 346.
*An Accessory Pancreas. N. von Hedry.—p. 349.
Invagination from Hamartoma in Infant. L. Sussig.—p. 353.
*Attempts to Induce Cancer. H. Burckhardt and W. Müller.—p. 364.
Perirenal Hydronephrosis. H. Coenen and M. Silberberg.—p. 374.
Curvilinear Osteotomy. O. Thomann.—p. 393.
*Action of Periarterial Sympathectomy. O. Wiedhopf.—p. 399.
Suppuration in Hydatid Cysts. E. Hesse and J. Majanz.—p. 446.
Mechanical Strain and Bone Growth. W. Müller.—p. 459.
The Spreading of Mammary Cancer. C. Yoon.—p. 473.

Surgery of Gastric and Duodenal Ulcer.—Flörcken's conclusions are based on ninety-eight cancer and 270 ulcer cases. "Both the immediate and the remote outcome testify to the advantages of extensive resection for ulcer, although it may be necessary first to prepare with transfusion of blood, digitalis, etc."

An Accessory Pancreas.—Hedry removed a tumor from the upper jejunum which proved to be aberrant pancreatic tissue. Its secretion had evidently kept up an irritation in the bowel wall for years.

Attempts to Induce Cancer by Long Continued Irritation.—Burckhardt and Müller's experiments with repeated burning, scalding or roentgen-ray exposures of more than 100 mice all gave negative results. Probably the optimal dosage had not been realized. The attempts to induce tar cancers were promptly successful.

Action of Periarterial Sympathectomy.—Wiedhopf applied plethysmography to determine the action of periarterial sympathectomy and of freezing or otherwise blocking a nerve on the vessels beyond. In the human hand and in dogs' hind legs no effect was apparent from periarterial sympathectomy, while blocking the nerve by freezing or an anesthetic had a very pronounced effect on the vessels. The findings confirm the accepted teachings in regard to the course of the sympathetic nerve fibers; Leriche's assumptions in regard to periarterial sympathectomy conflict with them.

Deutsche medizinische Wochenschrift, Berlin

49: 1483-1508 (Dec. 7) 1923

Muscle Tonus. Von Weizsäcker.—p. 1483.
*Mercuric Chlorid Nephrosis. J. Stukowski.—p. 1486.
*Abdominal Pressure and Heart Action. G. Petényi.—p. 1488.
Ocular Disturbances in Pregnancy. K. Fink.—p. 1490. Conc'n.
Treatment of Helminthiasis. H. Brüning.—p. 1492.
Physiology of Muscles. Ebbecke.—p. 1496.
Emigration to the United States. Oppenheimer.—p. 1498.

Mercuric Chlorid Nephrosis.—Stukowski recommends intravenous injections of hypertonic glucose solutions in mercuric chlorid poisoning. He infuses 250 c.c. of a 20 per cent. solution every third day. He emphasizes the grave prognosis of poisoning by way of the vagina (one case after introduction of a 1 gm. tablet).

Abdominal Pressure and Heart Action.—Petényi explains the bradycardia in Valsalva's experiment by the increase in abdominal pressure.

49: 1509-1532 (Dec. 14) 1923

Diagnosis and Treatment of Splenomegaly. Walterhöfer.—p. 1509.
*Tuberculosis in Guinea-Pigs. F. Klopstock.—p. 1511.
Titration of Diphtheria Antitoxin. W. Scholz.—p. 1512.
Intense Leukocytosis in Cancer. P. Schenk.—p. 1513.
Colpitis. A. Seitz.—p. 1514.
Failures of Abortive Treatment of Syphilis. E. Hofmann and O. Mergelsberg.—p. 1516.
Bismuth Treatment of Syphilis. Biberstein.—p. 1518. Idem. J. Jadassohn.—p. 1519.
*Leucin and Tyrosin in Sputum. Tellgmann.—p. 1521.
Treatment of "Chronic Heart Insufficiency." Ginzberg.—p. 1522.
Vital Statistics in Czechoslovakia. E. Roesle.—p. 1523.
Reform of Medical Curriculum. J. Schwalbe.—p. 1523.
The Myopia of Goethe and His Mother. G. Abelsdorff.—p. 1525.

Tuberculosis in Guinea-Pigs.—Klopstock found in tuberculous guinea-pigs positive complement fixation in nine to fourteen days after the infection. The serologic findings did not always parallel the intracutaneous reaction.

Leucin and Tyrosin in Sputum.—Tellgmann found leucin and tyrosin in the sputum of a patient with a carcinoma of the bronchi and pleura.

49: 1533-1566 (Dec. 21) 1923

*Treatment of Febrile Abortion. G. Winter.—p. 1536.
Progress in Diagnosis of Syphilis. K. Zieler.—p. 1538.
*Material Forming Ferments. M. Jacoby.—p. 1541.
Disinfection of the Mouth. H. Leo.—p. 1542.
*Yellow Urticaria in Jaundice. J. Jadassohn.—p. 1544.
Experimental Research on Insulin. Collazo and Händel.—p. 1546.
Senile Involution Aspermia. Fürbringer.—p. 1547.
*Treatment of Peritonitis. H. Küstner.—p. 1548.
Gonococcus Sepsis. L. Dorner.—p. 1549.
Serodiagnosis of Tuberculosis. Hofmann and Süssdorf.—p. 1550.
Clinical Aspects of Heredity. H. Rautmann.—p. 1552.
Vaccination Against Smallpox. K. Kisskalt.—p. 1554.
Legal Questions Affecting Medical Practice. Ebermayer.—p. 1554.

Treatment of Febrile Abortion.—Winter recommends bacteriologic examination of the vaginal secretions in infected abortions. When there is a prevalence of streptococci, especially of hemolytic type, treatment should be conservative. If bacteriologic examination is impossible, the practitioner should wait for four or five days. If the temperature then is normal, he can evacuate the uterus four days later. Quinin must always be used. With complications present, the uterus should never be evacuated.

Material from Which Ferments are Formed.—Jacoby experimented with proteus bacilli. He found that glucose and certain other substances of similar composition enhance the production of urease. Leucin or isoleucin was essential for this action; no other amino acids could be substituted for them.

Yellow Urticaria in Jaundice.—Jadassohn confirms Schürer's observation of the yellowness of urticaria and other eruptions in jaundice. The color appears before the skin shows the yellow tint, and it may persist for some time after the subsidence of the jaundice.

Ether in Treatment of Peritonitis.—Küstner found that ether extracts fats and fatty acids from the pus in peritonitis. After evaporation of the ether, the peritoneum is covered with these substances; they have an antiseptic action, and continue the disinfecting action of the ether. The hyperemia induced by the ether is also favorable. Consequently, he considers the use of ether in large amounts as rational in treatment of purulent peritonitis. The ether should not be removed with gauze; spontaneous evaporation is better.

Klinische Wochenschrift, Berlin

2: 2221-2268 (Dec. 3) 1923

*Dynamic Action of Food. J. Abelin.—p. 2221.
Gaseous Edema. L. Aschoff.—p. 2223.
Roentgenography of Blood Vessels. Berberich and Hirsch.—p. 2226.
*Tuberculin and the Vegetative System. E. Moro.—p. 2230.
*Irradiation of Cancer. E. Opitz.—p. 2232.
*Action of Insulin. E. Bissinger et al.—p. 2233.

*Early Diagnosis of Congenital Syphilis. L. Vulovic.—p. 2235.
Skin Sensitivity in Eczema. E. Rajka.—p. 2238.
Serodiagnosis of Cancer. H. Kahn.—p. 2241.
Treatment of Poliomyelitis. F. Schultze.—p. 2242.
*Pituitary and Oliguria. H. Molitor and E. P. Pick.—p. 2242.
Action of Caramel in Diabetes. E. Grafe and E. von Schröder.—p. 2243.
Leukocytes in Cerebrospinal Fluid. K. Blum.—p. 2243.
Thrombosis of Renal Veins. S. Petremand.—p. 2244.
Correction of Gait in Spastic Conditions. Silfverskiöld.—p. 2245.
Uric Acid in Blood. E. Joël.—p. 2250. Begun, p. 2212.

Dynamic Action of Food.—Abelin found that ingestion of thyroid preparations and of some proteinogenous amins (tyramin, phenylethylamin) and, in less degree, injections of epinephrin are followed by an increase in the specific dynamic action of food. This action of thyroid appears before the increase in basal metabolism, and lasts longer. It decreases, however, during the acme of the increased basal metabolism. This explains the divergent findings in exophthalmic goiter. He draws a parallel between the action of thyroid and injections of foreign proteins. It seems that both procedures (and perhaps also exophthalmic goiter) act by means of the split products of proteins. Meat free from vitamins increases the metabolism less than raw meat.

Tuberculin and the Vegetative System.—Moro recalls his publication which appeared in 1908. He expressed then the theory that the tuberculin reaction is caused by a specific increase in the irritability of the vegetative nervous system.

Irradiation of Cancer. — Opitz irradiated experimental tumors and found that the favorable action increased only up to a certain dose. If larger amounts were used, the result was aggravation—just as in overstrong irradiation of human cancer. If other parts of the body of the animals were treated with rays, the results were as good as if the cancer had been irradiated. The action is not direct. It is due to general cellular and humoral reactions, resembling the action of cholin (vagus stimulation).

Action of Insulin.—Bissinger, Lesser and Zipf found no decrease in sugar formation in the isolated liver of diabetic frogs after insulin. When they injected glucose with insulin intraperitoneally into white mice, the sugar disappeared at least three times faster than in the controls.

Early Diagnosis of Congenital Syphilis.—Vulovic scrapes the inside of the umbilical vein of the cord, close to the infant, and examines the material in a dark field for spirochetes. He reports good results.

Pituitary Treatment and Oliguria.—Molitor and Pick report experiments on the inhibition of diuresis by preparations from the pituitary gland (both lobes). They were able to counteract it by giving salts, glucose and especially urea, but not by other diuretics. The action of pituitary preparations is extrarenal, but it is apparent only when the kidney is in good condition.

2: 2301-2332 (Dec. 17) 1923

Neoplasms from Irritation. G. Joannovic.—p. 2301.
*Endogenous Activating Substances. Weichardt and Scholz.—p. 2305.
*Paralysis of Respiration. E. Kosterlitz.—p. 2307.
*Syphilis in Rabbits. F. Georgi and J. Steinfeld.—p. 2309.
Millon's Liver Function Test. Lepehne and Bandisch.—p. 2313.
Ring Test in Syphilis. W. Gaehtgens.—p. 2314.
Terms in Roentgenology of Lungs. K. Klare.—p. 2316.
"Action of Thrombin and Calcium." Stuber.—p. 2317. Reply. E. Wöhlisch.—p. 2318. Supplementary. Idem and Paschkis.—p. 2319.
*Action of Insulin. S. Büchner and E. Grafe.—p. 2320.
*Flocculation of Trypsin. P. Saxl.—p. 2320.
Tabetic Arthropathy. G. Stiefler.—p. 2321.
Roentgen Treatment of Malignant Tumors. H. Holfelder.—p. 2322.
Begun, p. 2287.

Endogenous Activating Substances.—Weichardt and Scholz found an increased amount of noncoagulable nitrogen in the liver of fatigued animals. They point to similar changes after injection of foreign proteins. Extracts from organs increase the activity of protoplasm. Streptococci grow better in a medium to which such an extract has been added.

Paralysis of Respiration. — Kosterlitz recommends in asphyxia the prone position, with the head low. He believes that this ventral position relieves the centers in the medulla oblongata. He had fairly good results in operations on the posterior cranial fossa, where he assumed compression of the brain in the occipital foramen by the weight of the cerebellum, as the cause of the asphyxia.

Serodiagnosis of Rabbit Syphilis.—Georgi and Steinfeld confirm the usefulness of removing the most labile portions of the rabbit's serum with dilute hydrochloric acid, as recommended by Sachs and Georgi. They eliminated by this means the nonspecific reactions, and were able to check up serologically the development of syphilis in these animals.

Action of Insulin.—Büchner and Grafe determined the respiration in sections from various living tissues. Insulin increased the respiratory quotient and the oxygen intake. Their findings with muscle tissue were less clear.

Flocculation of Trypsin.—Saxl found that serums flocculate trypsin in various concentrations. The reaction seems to be parallel to the antitryptic titer.

Münchener medizinische Wochenschrift, Munich

70: 1499-1524 (Dec. 21) 1923

Preventive Vaccination in Tuberculosis. Selter et al.—p. 1499.
*Thrombopenia in Type-Founders. A. Seitz.—p. 1501.
*Cholecystectomy. Von Hofmeister.—p. 1503.
*Treatment of Bronchitis. E. Mahlo.—p. 1505.
Intestinal Complication of Tubal Pregnancy. V. C. Irk.—p. 1508.
"Mistakes in General Anesthesia." Friedländer.—p. 1509.
Inadequate Hemostasis by Laymen. C. Haeberlin.—p. 1510.
Hemostasis with Sehrt's Clamp. Bamberger.—p. 1510.
Fractures of Neck of Femur. K. Port.—p. 1511.
Social Insurance and Physicians. Spesboni.—p. 1513.

Hygiene in Type-Foundries.—Seitz found no basophilic stippling in the blood of type founders. He assumes that they grow accustomed to the action of lead. He found, however, very frequently a relative lymphocytosis and slight eosinophilia. A decrease of blood platelets under 130,000 per cubic millimeter was present in 76-86 per cent. of the workmen. He was able to produce similar changes in the blood of cats with antimony, but not with lead.

Cholecystectomy.—Hofmeister had occasion, eleven years ago, to observe on himself the discomfort caused by drainage after cholecystectomy. He tried therefore to close such wounds without drainage—a method described in 1920 by Haberer as "ideal cholecystectomy." It is indicated in about 50 per cent. of gallstone cases. Very careful work is imperative. Contraindications are: gallstone in the common bile duct, abscesses, or recent peritonitis near the gallbladder. Only in one of his 117 cases was he obliged to reopen and drain secondarily. He combined the operation in forty-five cases with other measures which biopsy had indicated. He removed the appendix in 112 of these patients.

Treatment of Bronchitis.—Mahlo gives an infusion of 1 gm. of jaborandi leaves (about one even teaspoonful) three times daily in bronchitis and asthma without expectoration. The drug induces a more fluid secretion in the bronchi as well as salivation and sweating. The dose can be increased four times without danger.

Wiener klinische Wochenschrift, Vienna

36: 863-878 (Dec. 6) 1923

*Material for Cancer Growth. E. Freund and G. Kaminer.—p. 863.
Production of Antitoxic Serums. R. Kraus.—p. 866.
*Toxicoses from Devitalized Tissue. K. Peyrer.—p. 868.
Miliary Tuberculosis. F. Jarisch and H. Hönlinger.—p. 870.
Loosening of Dressings. H. Beer.—p. 871.

Source of Material for Cancer Growth.—E. Freund and Gisa Kaminer publish the results of the last ten years of their chemical research on malignant tumors. The fact that esophageal cancers remain small in spite of progressive destruction of the body tissues made them suspect that cancer feeds rather on exogenous substances than on the material furnished by the body cells. They added water extracts from the contents of the small intestine of carcinomatous persons to the serum of normal subjects and produced changes identical with those found in the serums of cancer patients (loss of lytic power against cancer cells and acquisition of a protecting power against the lytic action of normal serum). Moreover, the normal serum thus treated gave precipitates with aqueous extracts from cancers, the same as if it had been taken from a patient with cancer. They incubated such intestinal contents under petrolatum for a few days and found that addition of fats, especially palmitin, increased the action. They were able to obtain sufficient quantities for chemical analysis, and found that the action was due to an unsaturated

dicarbon acid of the formula $C_{18}H_{32}O_4$. This acid is labile and has a strong rancid odor. Analogous results have been obtained with intestinal contents of persons suffering from sarcomas when peptone was used instead of fat. When they added palmitin to the intestinal contents from healthy subjects they obtained a saturated dicarbon acid ($C_{28}H_{56}O_4$) which had specific lytic properties against cancer cells. Thus the same substances which, in normal persons, are the source of a protective compound, give rise in carcinomatous patients to another acid which protects the carcinoma and probably changes carbohydrates so that they can be used only by the carcinoma. The authors discuss several facts which indicate that the change of the intestinal chemistry in cancer is not secondary, but precedes the development of the neoplasm and persists even after radical operations. A local cause is requisite in addition to this general predisposition. The work of Freund and Kaminer has brought out several facts of the highest importance. They discovered the lytic action of normal serums and tissue extracts on cancer cells, and found that it is due to a compound of a saturated dicarbon acid. This action is lacking in chronic ulcers and other "precancer" conditions, including the stage preceding experimental tar cancer. They determined the empiric formula of this compound as well as of the two dicarbon acids formed in the intestines of normal subjects, and of patients with cancer, respectively. They proved that this acid is specific and imparts to normal serum the qualities of serum from carcinoma patients but not from cases of sarcoma. They determined not only the empiric formulas but give important hints in regard to the constitution of these peculiar acids. They hope to produce cancer experimentally on an entirely new basis and even to influence the abnormal intestinal chemistry in cancer.

Toxicoses from Devitalized Tissue.—Peyrer found all the symptoms of a negative phase (increase in serum globulins and decrease in complement and precipitins) in scalded animals. An intensive irradiation with a quartz lamp lowered the skin tuberculin sensibility in man.

36: 879-896 (Dec. 13) 1923

Treatment of Inflammation of Upper Air Passages. Réthi.—p. 879.
*Spasm of Esophagus with Gastric Cancer. H. Schlesinger.—p. 882.
Intra-Ocular Pressure in Hemiplegia. Kahler and Sallmann.—p. 883.
Lipomas in Muscles. K. Pichler.—p. 887.
Fluctuations in Radiosensitivity of Cells. G. Schwarz.—p. 887.
Teaching of History of Medicine. I. Fischer.—p. 888.

Spasm of Esophagus with Gastric Cancer.—Schlesinger has found sometimes transient spasm of the esophagus as the first sign of a carcinoma in the stomach.

36: 897-914 (Dec. 20) 1923

Transfusion of Blood in Gynecology. P. Werner.—p. 897.
Treatment of Encephalitis. H. Hoff.—p. 899.
Gastroscopy. W. Sternberg.—p. 905.
*Roentgen-Ray Therapy. G. Schwarz.—p. 906.
"Artificial Abortion." H. Peters.—p. 907.

Roentgen-Ray Therapy.—Schwarz emphasizes the difference between metabolism of substances and metabolism of energy. He found in 1907 that only the metabolism of growth increases radiosensibility. Lowering of this metabolism—as for instance by pressure—decreases it. He found in 1909 that oxidation processes have no influence.

36: 915-924 (Dec. 27) 1923

*Massage in Psychomotor Excitement. L. Stanojevic.—p. 915.
Prevention of Fracture in the Veit-Smellie Maneuver. I. Amreich.—p. 917.
*Constitutional Aspects of Amenorrhea. B. Aschner.—p. 918. Begun, p. 901.

Massage in Psychomotor Excitement.—Stanojevic recommends hydrotherapy combined with massage in mental affections with motor excitement. The patients get into a condition of "passive feeling."

Constitutional Aspects of Amenorrhea.—Aschner accepts Seitz' division of amenorrhea into the complete type, the milder oligomenorrhea, and opsomenorrhea, which signifies a longer interval in menstruation. He finds that the condition occurs usually in five types of women: 1, the anemic and chlorotic; 2, the plethoric, which are benefited by venesection; 3, the hypoplastic (universal or partial); 4, the obese, and 5, women with hypertrichosis even of small degrees. He is inclined to accept the old views on the depurative function of menstruation. He even doubts whether climacteric disturbances are not due to suppression of the menstruation rather than to cessation of the ovarian function. It is known that obese women are sometimes cured of amenorrhea after reducing. Yet there are other instances in which the obesity disappeared after regular menstruation had been induced by venesection and local measures. Iron and arsenic may do more harm than good in plethoric women.

Zentralblatt für Gynäkologie, Leipzig

47: 1613-1656 (Oct. 20) 1923

Interruption of Pregnancy plus Sterilization. H. Freund.—p. 1615.
Genesis of Icterus Neonatorum. M. Turolt and O. Tezner.—p. 1618.
*Influence of Syphilis on Premature Births. H. Baumm.—p. 1624.
Collifixatio for Uterine Prolapse. H. Keitler.—p. 1627.
Postoperative Gonococcus Parotitis in Young Woman. Wittwer.—p. 1631.

Influence of Syphilis on Premature Births.—Baumm states that among the 207 premature in 1,540 recent births (excluding abortions), syphilis was beyond question in 12.6 per cent. Of the 207 premature infants, 71.4 per cent. were dismissed the tenth day as apparently healthy, and in 5.8 per cent. of them syphilis had been diagnosed in the mothers. As causes of the 12 per cent. stillbirths, he found in 12 instances syphilis; in seven lack of vitality (weight under 1,500 gm.), and in seven cases other causes. Of the 16.6 per cent. infants dying in the hospital, 13.9 per cent. had syphilis; 22.2 per cent. were under 1,500 gm. in weight, and 63.9 per cent. died from other causes. Almost half of the syphilitic premature births were stillborn, and of the living births, one third soon died.

Casopis lekaruv ceskych, Prague

62: 1353-1440 (Dec. 15) 1923

Technic of Nephropexy. J. Zahradnícek.—p. 1355.
Treatment of Prognathism. J. Zahradnícek.—p. 1361.
Pseudocoxalgia from Appendicitis. V. Novák.—p. 1368.
Contralateral Dystopia of Kidneys. K. Neuwirt.—p. 1371.
Cystic Dilatation of Ureter. K. Neuwirt.—p. 1377.
*Extirpation of Inguinal Glands. K. Neuwirt.—p. 1379.
*Thrombophlebitis Around Gastric Ulcers. J. Podlaha.—p. 1380.
Movable Cecum. A. Vána.—p. 1391.
Colorless Bile in Common Duct. A. Vána.—p. 1404.
Kottmann's Reaction in Goiter. Kálalová and Dlouhý.—p. 1409.
Dislocations of Patella. J. Zahradnícek.—p. 1419.

Extirpation of Inguinal Glands.—Neuwirt recommends the use of Kondoléon's "window drainage" in removal of the inguinal lymphatic glands. The connection between the superficial and deep lymphatic vessels thus obtained prevents lymphatic fistulas which are otherwise almost the rule in extirpations of inguinal glands.

Thrombophlebitis Around Gastric Ulcers.—Podlaha examined fifty-two chronic gastric ulcers. He found in the majority thrombosis of veins extending for 2-3 cm. around the ulcer. It is probable that these circulatory changes contribute to the chronicity of the ulcers. No carcinomatous changes were found.

62: 1441-1472 (Dec. 22) 1923

*Cerebellum and Speech. M. Seemann.—p. 1441.
Schick Test in Diphtheria. A. Doskocil.—p. 1447.
Foreign Body in Bronchus. L. Liebich.—p. 1453.

Cerebellum and Speech.—Seemann examined children with late development of speech. He found congenital deficiencies of the vestibular apparatus together with other signs described by Precechtel in these cases: frequent abnormal presentation at birth, and delay in learning to walk. He gives the reasons for his assumption of deficient cerebellar function, which accounts for the late development of speech. Speech is primarily an expressive movement, and therefore depends, like other coordinated movements, on the cerebellar function.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 2777-2795 (Dec. 29) 1923

*Vaccine Therapy. A. Willemse.—p. 2778.
Case of Hydatid Cyst in Lung. E. Roselaar.—p. 2782.

Vaccine Therapy.—Willemse reports encouraging results from an autogenous vaccine after failure of other measures in a few cases of asthma, of pyelitis in men, and ulcerative colitis.

Norsk Magazin for Lægevidenskaben, Christiania

84: 929-1024 (Nov.) 1923

*Sugar in the Blood in Diabetes. H. F. Høst.—p. 929.
History of and Experiences with Bismuth in Syphilis. W. Holland.—p. 955.
Ventriculography. S. Widerøe.—p. 961.
*Erysipelas. S. Laache.—p. 965.
*Traumatic Suppuration in the Knee. C. Semb.—p. 976.
*Arsphenamin Jaundice. E. Bruusgaard.—p. 989.

Glycemia as Guide to Treatment of Diabetes.—Høst declares that the tolerance of diabetics should be estimated by the sugar content of the blood, and not by the sugar content of the urine. Every effort should be made to keep the glycemia within normal range from the first onset of the disease. In twenty-four cases tabulated, underfeeding always reduced the sugar content of the blood, but the amount of reduction depended on the degree of undernutrition and the duration of the diabetes. The prognosis seems to depend on the facility with which the blood sugar can be brought down to and kept within normal range rather than on the initial hyperglycemia. The highest initial glycemia was 321 mg. in 100 c.c. of blood, but under the dietetic measures described, full earning capacity was restored and has persisted for two and a half years to date.

Erysipelas.—Laache charts 14,804 cases of erysipelas at Christiania and Bergen since about 1860. The majority of cases occurred in the winter, and the mortality ranged from 0.7 to 25 per cent.

Treatment of Traumatism of the Knee.—Semb's experience in sixteen cases of traumatic suppurating processes in the knee confirms the advantages of puncture and injection of phenol and camphor, according to Payr's technic, in all cases of seropurulent synovitis. With empyema, the Carrel-Dakin method seems to be preferable, with early exercise of the joint. With a phlegmon in the capsule, general surgical measures may be necessary in addition.

Arsphenamin Jaundice.—Bruusgaard asserts that cases occur in which arsphenamin alone is responsible for the jaundice, but he insists that such cases are extremely rare, and will become rarer, as we recognize signs of intolerance earlier. The casual combination of arsphenamin treatment and catarrhal jaundice or jaundice from gallstone disease explained some of his cases. His hospital records before the advent of arsphenamin show a number of isolated periods in which there were cases of jaundice with secondary syphilis, which now we would be inclined to credit to arsphenamin if this drug had been taken.

Svenska Läkaresällskapets Handlingar, Stockholm

49: 209-273 (Dec. 31) 1923

*Air Embolism. H. Bergstrand.—p. 209.
*Scrofula and Lymphatism. H. Kjerrulf.—p. 241.

Air Embolism.—Bergstrand's experiments on fifty rabbits and his clinical observation have confirmed that the danger with venous air embolism is from the drop in arterial pressure, as the accumulating bubbles of air reach the pulmonary capillaries. The slowing of the current raises the pressure in the pulmonary artery while the pressure in the aorta drops. The symptoms and death occur from the resulting general anemia of the brain. Paresis, indicating a local injury of the brain, was never noted in his animals or clinical cases. The blood in the aorta is dark colored, showing defective oxygenation, and inhalation of oxygen seems rational treatment. By lowering the head, the negative hydrostatic pressure in the veins tends to prevent further inflow of air. The animal experiments show that the danger is not past even after the low pressure has been combated, as the air may accumulate in the right heart. He never witnessed any benefit from puncture of the right ventricle in the animals; the air escapes into the pulmonary artery and is not released by puncture. Venesection might give relief with any form of air embolism.

With arterial air embolism, the air entering the left ventricle passes immediately into the aorta and the bubbles are found in the peripheral arteries, especially those at the base of the brain. He witnessed the sojourn for more than an hour of a cluster of bubbles in the vessels of the chorioid in his animals, until the gradual absorption allowed what was left to be swept along. Even the most resistant parts of the brain parenchyma would be permanently injured by such long contact. He estimates that as much as 75-100 c.c. of air could be borne in venous embolism without permanent harm, but even as little as 1 c.c. of air in the carotid artery is known to have felled a horse. His experimental research demonstrated that air can pass through the capillaries more readily than previously surmised, and he queries whether the small amounts of air that sometimes get into the veins in intravenous injections may not find their way finally into the systemic arterial circulation and thus reach the brain, and in time induce deficit symptoms from the local damage from a cerebral air embolus.

The Lymphatic Temperament.—Kjerrulf presents arguments to prove that lymphatism is an inherited or acquired condition for protection of individuals constitutionally predisposed to infections. It may represent what we call acclimatization or immunization, or it may disappear with puberty. Enlarged tonsils and adenoids should not be regarded as merely local affections but as signs of lymphatism calling for treatment with dieting, outdoor life, sunlight and especially scrupulous hygiene, with possibly iodids and cod liver oil.

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*Migraine with High Blood Pressure. T. E. Hess Thaysen.—p. 929.
*Treatment of Pleural Empyema. S. Hansen.—p. 932.
Source of Error in Folin Test for Uric Acid. E. Lundsgaard.—p. 937.
*Protein and Pellagra. M. Hindhede.—p. 939.
Accidental Strychnin Poisoning. H. Tomasson.—p. 940.
*Intolerance for Quinin and Iodid. J. C. Raeder.—p. 941.
*Treatment of Xerophthalmia. O. Blegvad.—p. 942.

Migraine with Hypertension.—The hypertension was of the essential type in the robust blacksmith of 58. The resulting circulatory disturbances in the brain had assumed the form of migraine on account of a familial predisposition.

Empyema of the Pleura.—Hansen says that the outcome was about the same in his 286 acute cases whether drainage had been by gravity or by aspiration, and whether the cavity had been irrigated or not. In the total 315 cases of pleural empyema, the mortality was 50 per cent. in young infants and 40 per cent. after 50; otherwise 12 and 17 per cent.

Protein and Pellagra.—Hindhede translates his article in THE JOURNAL, June 9, 1923. He corrects two proof errors and replies to Goldberger's communication in the June 23 issue: "The difference between the views of Goldberger and of Hindhede," he says, "is not more than a hair's breadth. Both take the ground away from under the active agitation in favor of animal food."

Epinephrin Relieves Drug Intolerance.—The man, aged 46, with a tendency to urticaria after eating oysters or strawberries, had a severe attack, with collapse, after a small dose of quinin, and again a week later after taking potassium iodid. In both of these drug intolerance attacks, relief was immediate (five minutes) after subcutaneous injection of 0.2 mg. of epinephrin.

Treatment of Xerophthalmia.—Blegvad reiterates that xerophthalmia may develop even when the food is rich in vitamin A if the digestive apparatus is unable to assimilate it. In a case of this kind (cancer of the liver in a man of 54), he supplied the circulation with the lacking vitamin A by parenteral injection of 1 c.c. of an ether extract of cod liver oil, free from cholesterol. He describes the technic for making it, and reports that improvement was prompt and pronounced.

CORRECTIONS

Epinephrin in Treatment of the Exudative Diathesis.—In the abstract in THE JOURNAL of Nov. 24, 1923, page 1829, the word "emetin" was printed by mistake instead of "epinephrin." The abstract should read ". . . pediatricians have been using epinephrin in the exudative diathesis for some years. It sometimes proves useful."

Gunshot Wounds.—The title to the abstract on page 1993, Dec. 8, 1923, should read "Gunshot Wounds" (instead of "Shotgun Wounds").